रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन ०१/२०१९ - एन टी पी सी - CEN 01/2019 - NTPC

RRB NTPC 2019 CBT-1

Non-Technical Popular Categories · CEN 01/2019 · CBT-1 · Mathematics · Question Paper

English

All 133 Shifts (Sets) · Mathematics Section · Official Answer Key

About this Compilation

This booklet contains all **133 shift papers** of the **RRB NTPC 2019 CBT-1** examination in **English** (**Mathematics** section only), with the correct option marked as per the official answer key.

✓ Correct option (highlighted green)

Source. Every question and option is the original image of the official RRB response sheet (no retyping). Sections are taken from the official image file names: Mathematics 30, General Intelligence and Reasoning 30, General Awareness 40 in every shift. Question numbers follow the saved English paper of each shift.

Dropped questions. 78 questions were ignored by RRB for all candidates (discrepancy in question/answer). They are printed as asked, with RRB's note and no answer tick.

English papers not saved. For 3 shifts (23 Jul, 24 Jul and 31 Jul 2021, 3:00 PM) and one dropped question of 11 Mar 2021 (10:30 AM) no English version was saved; the Hindi version is printed, marked HINDI.

How to use

- Use the **Index** page to jump directly to any set (clickable).
- Questions appear section by section in the order of the paper, numbered 1 onward.
- Diagram and wide-table questions appear at full width at the end of their section.
- The correct answer is highlighted in green with a tick.

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The angles of a triangle are $2x^{\circ}, (3x^{\circ} - 8^{\circ})$ and $(5x^{\circ} - 12^{\circ})$. The greatest angle of the triangle is:

A. 112°

B. 40°

C. 118°

D. 88° ✓

Q2 Mathematics

The ratio of ladies to gents numbers in a club is 3 : 2. Recently, 300 ladies joined the club and the ratio became 5 : 2. The number of lady members now in the club is:

A. 900

B. 1200

C. 750 ✓

D. 600

Q3 Mathematics

What is to be added to 12% of 2400, so that the sum will be equal to 18% of 5400?

A. 952

B. 972

C. 684 ✓

D. 288

Q4 Mathematics

The sum of two numbers is 60 and their HCF and LCM are 12 and 72 respectively. The sum of the reciprocal of the two numbers is:

A. $\frac{5}{12}$

B. $\frac{1}{5}$

C. $\frac{5}{72}$ ✓

D. $\frac{5}{6}$

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Q5 Mathematics

The simple interest on an amount of ₹3400 for 4 years is ₹680. The rate of interest is:

A. 6%

B. 8%

C. 5 % ✓

D. 4%

Q6 Mathematics

The greatest number that will divide 155, 260, 315 and leave the remainders 5, 10 and 15 respectively is:

A. 10

B. 75

C. 25

D. 50 ✓

Q7 Mathematics

Out of Harish's monthly salary of ₹45000, $\frac{1}{3}$ of the expenditures are on education and $\frac{2}{6}$ of the expenditures are on food and other necessities. The rest of the salary goes towards his savings. The amount of savings is:

A. ₹22500

B. ₹11250

C. ₹12000

D. ₹15000 ✓

Q8 Mathematics

The cost price of an article is 75% of the marked price. If a discount of 15% is allowed, then the profit or loss percentage is:

A. 15.55% loss

B. 15% profit

C. 13.33% profit ✓

D. 12.44% loss

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Q9 Mathematics

Shweta and Harish completed a project with an income of ₹28,000. In this project Shweta worked for 20 days and Harish worked for 30 days. If their daily wages are in the ratio of 5 : 6, then Shweta's share is:

A. ₹10,000 ✓

B. ₹12,000

C. ₹18,000

D. ₹16,000

Q10 Mathematics

The value of $180 \div (2^3 + 3^2 + 1) + 37 - 20$ equal to:

A. 27 ✓

B. 20

C. 23

D. 25

Q11 Mathematics

A train leaves station A towards station B at the speed of 50 km/hr. After half an hour, another train leaves station B towards station A at 150 km/hr. The distance between the stations is 725 km. The distance of the point from station A where the two trains are to meet is:

A. 250 km

B. 150 km

C. 168 km

D. 200 km ✓

Q12 Mathematics

If $a^3 - b^3 = 625$, $a^2 - b^2 = 25$ and $a + b = 5$ then the value of $a^2 + ab + b^2$ is:

A. 125 ✓

B. 25

C. 5

D. 150

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Q13 Mathematics

The value of $5\frac{2}{3} + 0.73 - 3.123$ is equal to:

A. 3.27 ✓

B. 3.12

C. 2.55

D. 5.73

Q14 Mathematics

The adjacent angles of a rhombus are in the ratio of 3 : 6. The smallest angle of the rhombus is:

A. 40°

B. 120°

C. 80°

D. 60° ✓

Q15 Mathematics

The unit digit in $4 \times 38 \times 764 \times 1256$ is:

A. 5

B. 6

C. 8 ✓

D. 4

Q16 Mathematics

A cylinder has a height of 14 cm and the curved surface area is 528 cm^2. The volume of the cylinder is:

A. 1244 cm^3

B. 792 cm^3

C. 1584 cm^3 ✓

D. 2538 cm^3

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Q17 Mathematics

The ratio of two positive numbers is 3 : 7 and their LCM is 231. The smaller number is:

A. 33 ✓

B. 55

C. 44

D. 77

Q18 Mathematics

If $\frac{x}{2}+\frac{2}{y}=1$ and $\frac{y}{2}+\frac{2}{z}=1$, then the value of $\frac{z}{2}+\frac{2}{x}$ is:

A. -1

B. 0

C. 2

D. 1 ✓

Q19 Mathematics

X and Y together can complete a piece of work in 12 days, Y and Z can do it 18 days and X and Z can complete the same work in 15 days. If X, Y and Z can together complete the work, approximately how many days will be required to complete the work?

A. 18

B. 10 ✓

C. 14

D. 12

Q20 Mathematics

The value of $\frac{6}{5}$ of $\left(\frac{1}{3}+\frac{2}{4}\right)-\frac{5}{6}$ of $\left(\frac{3}{10}+\frac{12}{20}\right)-\frac{1}{6}$ is:

A. $\frac{1}{3}$

B. $\frac{3}{4}$

C. $\frac{5}{6}$

D. $\frac{1}{12}$ ✓

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Q21 Mathematics

In order to qualify in an examination, one has to secure 50% of the overall marks. In the examination consisting of two papers, a student secured 40% in the first paper of 200 marks. Minimum what percentage of marks should be secured in the second paper of 150 marks in order to qualify in the examination?

A. 60 %

B. 68 %

C. 65 %

D. 64 % ✓

Q22 Mathematics

A rope is divided in to three different parts. The first part is $\frac{1}{5}$ of the whole length, the second part is $\frac{3}{2}$ of the first. The third part is what fraction of the rope?

A. $\frac{3}{4}$

B. $\frac{2}{3}$

C. $\frac{1}{3}$

D. $\frac{1}{2}$ ✓

Q23 Mathematics

The value of $\frac{\sqrt{54}\times\sqrt{125}}{\sqrt{24}\times\sqrt{45}}$ is:

A. $4\sqrt{6}$

B. 4

C. $2\sqrt{5}$

D. 2.5 ✓

Q24 Mathematics

The smallest 5 digit number that leaves a remainder of 6 when divided by 7 is:

A. 10002 ✓

B. 10009

C. 10007

D. 10003

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Q25 Mathematics

If $\frac{1}{\sin^2 65^\circ+\cos^2 65^\circ}+\frac{\sin 15^\circ}{\cos 75^\circ}+\frac{\cos 65^\circ}{\sin 25^\circ}=\sqrt{3}\tan\theta$, then the value of θ is:

A. 60° ✓

B. 45°

C. 30°

D. 90°

Q26 Mathematics

If $\sin\theta=\frac{3}{4}$ and $\cos\theta=\frac{5}{4}$, then the value of $\frac{1+\tan\theta}{1-\cot\theta}$ is:

A. $\frac{11}{5}$

B. $-\frac{8}{5}$

C. $\frac{2}{5}$

D. $-\frac{12}{5}$ ✓

Q27 Mathematics

The simple interest on a sum of amount for 2 years at 10% per annum is ₹500. The compound interest on the same sum at the same rate for the same time is:

A. ₹515

B. ₹525 ✓

C. ₹510

D. ₹520

Q28 Mathematics

In general, the most appropriate average value in measuring central tendency is:

A. mode

B. mean ✓

C. median

D. range

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Q29 Mathematics

In a rectangle, the length is twice the breadth and the perimeter of the rectangle is 48 cm. The area of the rectangle is:

A. $512\ \text{cm}^2$

B. $128\ \text{cm}^2$ ✓

C. $288\ \text{cm}^2$

D. $144\ \text{cm}^2$

Q30 Mathematics

The value of $5\sin 14^\circ \sec 76^\circ + 3\cot 15^\circ - \cot 75^\circ + 2\tan 45^\circ$ is:

A. 1

B. 8

C. 10 ✓

D. 0

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

For any natural number n, $6^n - 5^n$ always ends with :

A. 5

B. 3

C. 7

D. 1 ✓

Q2 Mathematics

A can complete a piece of work in 20 days and B alone can complete the work in 30 days. Due to some other work, A had to leave the work before completion and for the last 5 days B alone did the work. The total time taken to complete the work is:

A. 12 days

B. 18 days

C. 15 days ✓

D. 20 days

Q3 Mathematics

The numerator of a fraction is 2 less than the denominator. If the numerator is multiplied by 2 and the denominator is multiplied by 3, then the fraction becomes $\frac{2}{9}$. The fraction is:

A. $\frac{5}{7}$

B. $\frac{3}{5}$

C. $\frac{7}{9}$

D. $\frac{1}{3}$ ✓

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Q4 Mathematics

The sum of two numbers is 1500. Their LCM is 16379. Two numbers are:

A. 1489, 11 ✓

B. 1479, 21

C. 1453, 47

D. 1053, 447

Q5 Mathematics

A number was increased by 40% and there after decreased by 40%. The net change in the number in percentage is:

A. no change

B. 16% increase

C. 16% decrease ✓

D. 32% decrease

Q6 Mathematics

The capacity of working by A and B is in the ratio 3 : 4. If A takes 12 days to finish the work, the time taken by B to finish the same work is:

A. 9 days ✓

B. 16 days

C. 18 days

D. 12 days

Q7 Mathematics

If $x = a \sin t, y = b \tan t$, then $\frac{a^2}{x^2} - \frac{b^2}{y^2}$ is:

A. 0

B. 2

C. -1

D. 1 ✓

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Q8 Mathematics

If $\cos 2\theta = \sin\theta$ and θ lies between 0 and 90°, then θ will be:

A. $45°$

B. $90°$

C. $30°$ ✓

D. $60°$

Q9 Mathematics

ABC is an equilateral triangle. P, Q and R are the midpoints of sides AB, BC and AC respectively. The length of the side of the triangle is 4 cm. The area of triangle PQR is:

A. $\frac{\sqrt{3}}{9}\text{cm}^2$

B. $\frac{\sqrt{3}}{2}\text{cm}^2$

C. $\sqrt{3}\text{cm}^2$ ✓

D. $\frac{1}{4}\sqrt{3}\text{cm}^2$

Q10 Mathematics

If $P = 0.3 \times 0.3 + 0.03 \times 0.03 - 0.6 \times 0.03$ and $Q = 0.54$, then $\frac{P}{Q}$ is equal to:

A. 4.5

B. 0.45

C. 4.05

D. 0.135 ✓

Q11 Mathematics

A sum of money of ₹2600.00 was lent out in two parts in such a way that the simple interest on the first part at 10% per annum for 5 years is the same as the interest of the second part at 9% per annum for 6 years. The part lent out at 10% is -

A. ₹1150.00

B. ₹1250.00

C. ₹1350.00 ✓

D. ₹1450.00

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Q12 Mathematics

If $p^2 + q^2 - r^2 = 0$, then the value of $p^6 + q^6 - r^6 \div p^2q^2r^2$, is:

A. 3

B. $\frac{1}{3}$

C. -3 ✓

D. 3pqr

Q13 Mathematics

A man invested $\frac{1}{2}$ of his capital at 5% rate of interest per annum, $\frac{1}{3}$ of his capital at 8% per annum and the remaining at 10% rate of interest per annum. His total income from the three investments is ₹820.00 in a year. The total capital invested is:

A. ₹16000.00

B. ₹6400.00

C. ₹8000.00

D. ₹12000.00 ✓

Q14 Mathematics

The length of the longest pole, that could be placed in a room of dimensions 10 m, 8 m and 6 m, is:

A. 18 m

B. 14 m

C. $10 \times \sqrt{2}$ m ✓

D. 15 m

Q15 Mathematics

The smallest square number which is exactly divisible by 12, 15 and 18 is:

A. 625

B. 1225

C. 900 ✓

D. 400

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Q16 Mathematics

Given below is the marks obtained by 20 students in mathematics out of 30 marks.

7, 9, 12, 12, 13, 12, 14, 14, 14, 14, 15, 16, 17, 18, 18, 19, 20, 18, 20, 13. Then (2 × median − mode) of the data is equal to:

A. 14 ✓

B. 0

C. 12

D. 18

Q17 Mathematics

The radius of the circumcircle of an equilateral triangle of $\sqrt{3}$ unit side, is:

A. $\frac{1}{4}$ unit

B. $\frac{2}{3}$ unit

C. $\frac{1}{2}$ unit

D. 1 unit ✓

Q18 Mathematics

The smallest number which should be subtracted from the smallest number of four digits to make it a perfect square is:

A. 120

B. 39 ✓

C. 159

D. 24

Q19 Mathematics

If x satisfies the equation $x^2 - 2x + 1 = 0$, then the value of $x^3 - \frac{1}{x^3}$ is:

A. 1

B. -1

C. $\frac{1}{3}$

D. 0 ✓

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Q20 Mathematics

Three persons invested an amount of money in a business in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$. At the end of a year, the total profit was ₹15600. The largest share received in profit will be:

A. ₹7200 ✓

B. ₹8000

C. ₹7500

D. ₹7000

Q21 Mathematics

Solve the following:

$$\frac{1}{2} \times \frac{2}{3} - \frac{3}{4}\left(\frac{1}{2} \times \frac{1}{3} + \frac{5}{6}\right) \times \frac{4}{21} = ?$$

A. 2

B. $\frac{1}{3}$

C. $\frac{1}{2}$

D. $\frac{4}{21}$ ✓

Q22 Mathematics

If $\frac{\sqrt{19-x\sqrt{12}}}{1} = \sqrt{4} - \sqrt{3}$, then the value of x is equal to:

A. $\sqrt{3} + 2$

B. $2 + 2\sqrt{3}$ ✓

C. $\sqrt{3} - 2$

D. $2 + 4\sqrt{3}$

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Q23 Mathematics

The difference between the mean of the first eight composite natural numbers and the mean of the first eight prime numbers, is:

A. $\frac{3}{20}$

B. $\frac{1}{5}$

C. $\frac{1}{8}$ ✓

D. $\frac{1}{4}$

Q24 Mathematics

In a school, the average age of boys and girls together is 16.8 years, the average age of boys is 15.4 years, and the average age of girls is 18.2 years. The ratio of number of boys to girls in the school is:

A. $2:3$

B. $1:1$ ✓

C. $3:2$

D. $3:5$

Q25 Mathematics

If $P = 2 + 0.2 \div (0.2 \times 2) - 1 \times 2$

$Q = 2 - 0.2 \div (0.2 \times 2) - \frac{1}{2} \times 2$, then $\frac{P}{Q}$ is the equal to:

A. 1.0 ✓

B. 1.5

C. -0.5

D. 0.5

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Q26 Mathematics

ABCD is a parallelogram. Side BC is produced to E such that BC = CE. Join AE which intersects side CD at P. The area of triangle ABE is:

A. $= \text{to } \frac{1}{3}$ of the area of parallelogram ABCD

B. less than the area of parallelogram ABCD

C. = to the area of parallelogram ABCD ✓

D. $= \text{to } \frac{1}{2}$ of the area of parallelogram ABCD

Q27 Mathematics

An article was sold at a gain of 12%. Had it been sold for ₹33 more, the gain would have been 14%.

The cost price of the article is:

A. ₹1800.00

B. ₹1850.00

C. ₹1750.00

D. ₹1650.00 ✓

Q28 Mathematics

If $\sqrt{2} + \sqrt{x} = \sqrt{3}$, then the value of x is equal to:

A. $-2\sqrt{6} - 5$

B. $2\sqrt{6} - 5$

C. $5 + 2\sqrt{6}$

D. $5 - 2\sqrt{6}$ ✓

Q29 Mathematics

In an election, there were only two candidates. The winning candidate got 48% of the total votes. His opponent got 6800 votes which was 34% of the total votes. Some of the votes were invalid. The winning margin of the candidate who won the election and the number of invalid votes respectively are:

A. 3200 votes, 3600 votes

B. 2800 votes, 3600 votes ✓

C. 3600 votes, 2800 votes

D. 3000 votes, 3600 votes

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Q30 Mathematics

A can complete a piece of work in 12 days. B is 20% less efficient than A. The number of days it will take for B to complete the work is:

A. 16 days

B. 20 days

C. 15 days ✓

D. 18 days

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If A : B = 15 : 16, B : C = 8 : 25, C : D = 20 : 9, then find A : D.

A. 4 : 3
B. 3 : 4
C. 3 : 2
D. 2 : 3 ✓

Q2 Mathematics

The side of an equilateral triangle ABC is 28 cm. Find the side of another equilateral triangle PQR whose area is 16 times the area of triangle ABC.

A. 56 cm
B. 112 cm ✓
C. 102 cm
D. 122 cm

Q3 Mathematics

If the ratio of mean and median of a certain data is 4 : 5, then find the ratio of its mean and mode.

A. 5 : 4
B. 3 : 7
C. 5 : 7
D. 4 : 7 ✓

Q4 Mathematics

A, B and C can complete a job in 40 days, 60 days and 80 days respectively. All the three worked together but A left 11 days and B left 8 days before the completion of work. In how many days, the entire work will be completed?

A. 26 days ✓
B. 24 days
C. 30 days
D. 28 days

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Q5 Mathematics

The train fare, bus fare and air fare between 2 places are in the ratio 5 : 8 : 12, the number of passengers travelled by them is in the ratio 3 : 4 : 5 and the total fare collected on a particular day for these modes of transportation for a single trip is ₹1,07,000. Find the total fare collected from the air passengers.

A. ₹80,000

B. ₹70,000

C. ₹60,000 ✓

D. ₹65,000

Q6 Mathematics

A, B and C can complete a job in 5 days. B, C and D can complete the same job in 10 days. C, D and A can complete the same job in 15 days and D, A and B can complete the same job in 30 days. How long A, B, C and D together will take to finish the job?

A. $7\frac{1}{2}$ days ✓

B. 7 days

C. 8 days

D. $8\frac{1}{2}$ days

Q7 Mathematics

If $2x + 5y = 12$, $xy = 2$, find the value of:

$8x^3 + 125y^3$

A. 1018

B. 1208

C. 1008 ✓

D. 1028

Q8 Mathematics

6889 students are sitting in an auditorium in such a manner that there are as many students in a row as there are rows in the auditorium. How many rows are there in the auditorium?

A. 77

B. 87

C. 83 ✓

D. 73

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Q9 Mathematics

Evaluate:

$\cos 20^\circ \cos 40^\circ \cos 80^\circ$

A. $\frac{1}{2}$

B. $\frac{1}{4}$

C. $\frac{1}{32}$

D. $\frac{1}{8}$ ✓

Q10 Mathematics

Simplify:

$62 \div 5 - \left(\frac{8}{9} \times \frac{18}{7}\right) \times \frac{7}{5} + \frac{5}{4} \times \frac{16}{25}$

A. 10 ✓

B. 15

C. 5

D. 12

Q11 Mathematics

A train leaves Bangalore railway station at a speed of 80 km/h for Mumbai. After 1 h another train leaves Bangalore railway station for Mumbai. at a speed of 100 km/h. How many hours, will the second train take to meet the first train?

A. 4 h ✓

B. 3 h

C. 6 h

D. 5 h

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Q12 Mathematics

A 2 m deep and 21 m wide river is flowing at the rate of 5 km/h. How many kilolitres of water will fall into the sea in 10 min?

A. 350 kl

B. 33000 kl

C. 3500 kl

D. 35000 kl ✓

Q13 Mathematics

Find the sum of the greatest 3-digit number and the smallest 4-digit number that have 24 as their HCF.

A. 1996

B. 1892

C. 1998

D. 1992 ✓

Q14 Mathematics

A sum of ₹5,000 was lent partly at 5% simple interest per annum and partly at 10% simple interest per annum. Total interest received after 5 years was ₹1,750. Find the amount of money that was lent out at 10% simple interest per annum.

A. ₹2,500

B. ₹2,000 ✓

C. ₹3,500

D. ₹3,000

Q15 Mathematics

A sum of money amounts to ₹12,100 in 2 years and ₹13,310 in 3 years, when compounded annually. Find the rate of interest.

A. 9%

B. 12%

C. 8%

D. 10% ✓

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Q16 Mathematics

The sum of and the difference between the LCM and HCF of two numbers are 369 and 351 respectively. If one number is 72, find the other number.

A. 75

B. 90

C. 45 ✓

D. 85

Q17 Mathematics

The mean of 150 items was found to be 45. If at the time of calculation, two items were wrongly taken as 83 and 76 instead of 38 and 46, then the correct mean is:

A. 43

B. 44.5 ✓

C. 44

D. 43.5

Q18 Mathematics

Simplify:

$24 + 7.2 \div 8 - 3 \times 2.3 + 5$

A. 23 ✓

B. 32

C. 18

D. 26

Q19 Mathematics

Simplify:

$186 - 7 \times (63 - 39) + 25 \div 5$

A. 32

B. 33

C. 23 ✓

D. 24

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Q20 Mathematics

ABCD is a square. X is the mid-point of AB. Y is a point on BC such that $BY = \frac{1}{3}BC$. If the area of ΔBXY is equal to 300 cm^2, find length of diagonal AC.

A. $50\sqrt{2}$ cm

B. $60\sqrt{2}$ cm ✓

C. 50 cm

D. 60 cm

Q21 Mathematics

The total cost of flooring a room at ₹12.50 per m^2 is ₹3,675. If the breadth and length are in the ratio 2 : 3, find its length.

A. 18 m

B. 21 m ✓

C. 15 m

D. 14 m

Q22 Mathematics

If $\sqrt{4624} = 68$, then the value of:

$\sqrt{46.24} + \sqrt{0.4624} + \sqrt{0.004624}$

A. 7.458

B. 7.648

C. 7.548 ✓

D. 7.854

Q23 Mathematics

In an election between Rana and Ranvir, Rana got 40% of the votes and was defeated by 60,000 votes. Find the number of votes polled in favour of Ranvir.

A. 1,20,000

B. 1,70,000

C. 1 ,60,000

D. 1,80,000 ✓

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Q24 Mathematics

If $x^3 + y^3 = 35$, $x + y = 5$, find the value of:

$x^4 + y^4$

A. 98

B. 79

C. 97 ✓

D. 87

Q25 Mathematics

If $1^2 + 2^2 + 3^2 + \ldots\ldots + 14^2 = 1015$, then $3^2 + 6^2 + 9^2 + \ldots\ldots + 42^2$ is equal to:

A. 9235

B. 9325

C. 9135 ✓

D. 9315

Q26 Mathematics

Find the value of:

$\sqrt{150} - \sqrt{54} - \sqrt{24}$

A. 1

B. 75

C. 72

D. 0 ✓

Q27 Mathematics

In an examination, 55% candidates passed in English, 35% candidates passed In mathematics and 20% candidates passed in both the subjects. If the total number of failed candidates in both the subjects is 1200, then find how many candidates took the exam.

A. 3000

B. 1200

C. 2800

D. 4000 ✓

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Q28 Mathematics

From the top of a cliff 25 m high, the angle of elevation of the top of a tower is found to be equal to the angle of depression of the foot of the tower. Find the height of the tower.

A. 50 m ✓

B. 40 m

C. 30 m

D. 60 m

Q29 Mathematics

The cost price of 8 tables is equal to the selling price of 5 tables. Find the percentage gain.

A. 40 %

B. 60 % ✓

C. 30 %

D. 45 %

Q30 Mathematics

Find the sum of all the numbers between 100 and 200 which are divisible by 12.

A. 1200 ✓

B. 1400

C. 1240

D. 1600

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The least number that when divided by 144, 108 and 72 leaves the remainder 3 in each case is:

A. 435 ✓

B. 432

C. 72

D. 429

Q2 Mathematics

If interest is compounded annually, a sum of ₹25,000 becomes ₹36,000 after 2 years. The rate of interest is:

A. 15 %

B. 20 % ✓

C. 5 %

D. 22 %

Q3 Mathematics

The value of $\frac{\sin 27^\circ.\cos 63^\circ}{\cos^2 27^\circ} - \frac{\sec 27^\circ.\operatorname{cosec} 63^\circ}{\tan^2 45^\circ}$ is:

A. -1 ✓

B. 2

C. 1

D. 0

Q4 Mathematics

The value of $\sqrt{72 \times 18} + \sqrt{0.04} + \sqrt{0.64}$ is:

A. 12

B. 36

C. 24

D. 37 ✓

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Q5 Mathematics

How many numbers from 250 to 1000 are exactly divisible by 5, 6 and 7?

A. 5

B. 7

C. 3 ✓

D. 6

Q6 Mathematics

A cylindrical tank has a capacity of $6160\ m^3$. If the diameter of the base of the tank is 28 m, then the depth of the tank (in m) is:

A. 10 ✓

B. 8

C. 12

D. 14

Q7 Mathematics

The product of three numbers is 10290 and the numbers are in the ratio of 3 : 5 : 2. The greatest number among the three numbers is:

A. 35 ✓

B. 21

C. 60

D. 75

Q8 Mathematics

If $3\cos\theta = \sqrt{3}$, then the value of $cosec\theta.tan\theta$ is:

A. $\frac{\sqrt{3}}{2}$

B. $\sqrt{3}$ ✓

C. $\frac{2\sqrt{2}}{3}$

D. $\sqrt{2}$

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Q9 Mathematics

The LCM of two numbers is 156 and their HCF is 26. If the difference between the two numbers is also 26, then the sum of the numbers is:

A. 78

B. 52

C. 104

D. 130 ✓

Q10 Mathematics

A mixture contains acid and alcohol in the ratio of 3 : 2. On adding 10 litres alcohol to this mixture, the ratio of acid to alcohol becomes 3 : 5. The quantity of acid (in litres) in the original mixture was:

A. 5

B. 4.5

C. 5.5

D. 10 ✓

Q11 Mathematics

A shopkeeper loses 10% on selling an article for ₹360. To gain 30%, what should have been the selling price of the article?

A. ₹600

B. ₹520 ✓

C. ₹740

D. ₹480

Q12 Mathematics

Three pipes, A, B and C, can fill a tank in 15 hours, 12 hours and 18 hours, respectively. If both pipes A and C are opened simultaneously into the empty tank, then the time taken (in hours) to fill the tank will be:

A. $9\frac{3}{5}$

B. $8\frac{2}{11}$ ✓

C. $7\frac{2}{3}$

D. $6\frac{5}{9}$

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Q13 Mathematics

The value of $\frac{1}{0.24}$ of 1.44 is:

A. 12

B. 140

C. 6 ✓

D. 166

Q14 Mathematics

From 10 liters of a solution 2 liters of water evaporated. The remaining solution was found to have 6 % salt. What was the percentage of salt in the original solution?

A. 4.8% ✓

B. 5.6%

C. 5.4%

D. 5%

Q15 Mathematics

The value of $200 \div (5.23 + 4.77) \times \left(\frac{3}{5} - \frac{2}{10}\right) + (5 - 2)$ is:

A. 8

B. 11 ✓

C. 19

D. 18

Q16 Mathematics

A sum of ₹5,000 is invested at 10 % simple interest per annum. In how many years will the amount of interest become ₹1,500?

A. 6

B. 5

C. 8

D. 3 ✓

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Q17 Mathematics

If $x+\left(\frac{1}{x}\right)=12$ and $x^2-\frac{1}{x^2}=50$, then the value of $x^4-\frac{1}{x^4}$ is:

A. 7200

B. 1800

C. 600

D. 7100 ✓

Q18 Mathematics

A number when decreased by $22\frac{1}{2}\%$ becomes 217. The number is:

A. 315

B. 212

C. 280 ✓

D. 420

Q19 Mathematics

If $a+b=8$ and $a^2+b^2=12$, then the value of a^3+b^3 is:

A. 716

B. 1136

C. −112 ✓

D. −211

Q20 Mathematics

The area of a rectangle is $300\ cm^2$ and the length of its diagonal is 5 cm. The perimeter of the rectangle (in cm) is:

A. 50

B. 121

C. 176

D. 25

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

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Q21 Mathematics

If $\frac{x}{y} = \frac{4}{5}$, then $\frac{5x+7y}{5x-7y} + \frac{6x+4y}{7x-8y}$ is equal to:

A. $\frac{3}{2}$

B. $-\frac{5}{4}$

C. $-\frac{22}{3}$ ✓

D. $\frac{11}{3}$

Q22 Mathematics

In his career, a tennis player won 5 matches, lost 12 matches and had 3 matches as draw. The fraction of the matches he lost in his career is:

A. $\frac{1}{5}$

B. $\frac{12}{5}$

C. $\frac{2}{5}$

D. $\frac{3}{5}$ ✓

Q23 Mathematics

Find the median value of the following ungrouped data:

26, 12, 15, 42, 36, 16

A. 42

B. 26

C. 30

D. 21 ✓

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Q24 Mathematics

A train running at a speed of 60 km/h crossed a pole in 1.5 min. The length of the train (in m) is:

A. 1500 ✓

B. 1200

C. 600

D. 800

Q25 Mathematics

The value of $4\sin^2 30° + 3\cot^2 60° - 2\tan^2 45°$ is:

A. 1

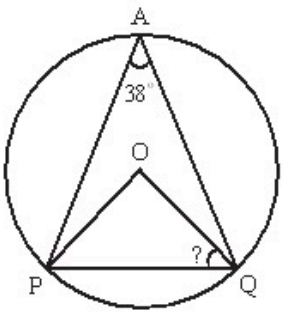
B. 9

C. 0 ✓

D. 5

Q26 Mathematics

In the given figure, PO and OQ are the radius of the circumcircle of △ APQ. If ∠PAQ = 38°, then ∠PQO will be:



A. 104°

B. 112°

C. 76°

D. 52° ✓

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Q27 Mathematics

In a mixture of liquid, $\frac{1}{5}$ part is acid, $\frac{3}{5}$ part is alcohol and the remaining part is water. If the total quantity of the mixture is 20 litres, then how much water (in litres) does the mixture contain?

A. 4 ✓

B. 15

C. 12

D. 8

Q28 Mathematics

30 workers can build a bridge in 40 days. If 75 workers are to be assigned to complete the same work, then the number of days required will be:

A. 56

B. 16 ✓

C. 12

D. 10

Q29 Mathematics

In a circle with a radius of 10 cm, XY and PQ are two parallel chords 12 cm and 16 cm in length, respectively. The two chords are situated on the opposite sides of the centre. The distance between the chords is:

A. 12 cm

B. 18 cm

C. 14 cm ✓

D. 12.80 cm

Q30 Mathematics

The value of $\frac{11}{5} - \left(\frac{2}{3} \text{ of } \frac{3}{5} - \frac{1}{5}\right) + \left(\frac{6}{5} \div \frac{4}{5}\right)$ is:

A. $\frac{3}{5}$

B. $\frac{2}{3}$

C. $\frac{1}{5}$

D. $\frac{7}{2}$ ✓

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Q1 Mathematics

Value of the square root of $\frac{36.1}{102.4}$ is:

A. $\frac{19}{31}$

B. $\frac{19}{34}$

C. $\frac{19}{32}$ ✓

D. $\frac{61}{340}$

Q2 Mathematics

A shop keeper sold two toys for ₹990 each. On first toy he gained 10% and on the second he lost 10%. Find the total percentage gain or loss.

A. 10% Gain

B. 1% Loss ✓

C. 1% Gain

D. 10% Loss

Q3 Mathematics

A cuboid having the surface area of 3 adjacent faces as a, b, c has the volume:

A. $a^3b^3c^3$

B. $(abc)^{\frac{1}{3}}$

C. abc

D. $(abc)^{\frac{1}{2}}$ ✓

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Q4 Mathematics

Find the number of all prime numbers less than 55.

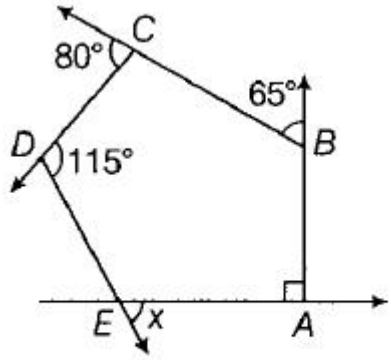
A. 18

B. 16 ✓

C. 17

D. 15

Q5 Mathematics



In the given figure, value of x is:

A. 70 °

B. 60 ° ✓

C. 65 °

D. 55 °

Q6 Mathematics

If mean is 40 and standard deviation is 5 then C.V (Coefficient of variation) is

A. 5%

B. 20%

C. 100 %

D. 12.5% ✓

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Q7 Mathematics

Solve the following.

$(x-y)^3+(y-z)^3+(z-x)^3 = ?$

A. $3(x-y)(y-z)(z-x)$ ✓

B. $(x-y)(y-z)(z-x)$

C. $(x+y+z)(x^2+y^2+z^2)$

D. $3xyz$

Q8 Mathematics

In a game Rajesh lost $\frac{1}{3}$ of his money in the first round of the game, in the second round he losses $\frac{3}{5}$ of his remaining money and in the third round he lost $\frac{4}{7}$ of the rest. He is left with what part of the original sum of money?

A. $\frac{4}{45}$

B. $\frac{4}{35}$ ✓

C. $\frac{2}{5}$

D. $\frac{4}{15}$

Q9 Mathematics

Solve the following.

$(4+2-16\div4+3)+\{(1+8\times7)\div19\}\times[(3+5-4)+(17-9\times4)]$ =?

A. -225

B. 335

C. 40

D. -40 ✓

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Q10 Mathematics

By selling an article for ₹138, a shopkeeper losses 8%. At what price should the article be sold to get a gain of 4% ?

A. ₹156 ✓

B. ₹144

C. ₹210

D. ₹90

Q11 Mathematics

Find the length of the longest pole that can be placed in a room of dimensions 30 m × 15 m × 10 m.

A. 33 m

B. 18 m

C. 31 m

D. 35 m ✓

Q12 Mathematics

Value of $\cos 1^\circ \cos 2^\circ \cos 3^\circ \ldots\ldots\ldots\ldots \cos 179^\circ$ is :

A. -1

B. 1

C. 0 ✓

D. $\frac{1}{2}$

Q13 Mathematics

Solve the following.

$6202.5 + 620.25 + 62.025 + 6.2025 + 0.62025 = ?$

A. 6791.59775

B. 6891.59775 ✓

C. 6891.59675

D. 5892.59775

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Q14 Mathematics

Two dice are thrown simultaneously and the sum of the numbers appearing on them is noted. What is the probability that the sum is 12?

A. $\frac{12}{36}$

B. 36

C. $\frac{1}{36}$ ✓

D. 3

Q15 Mathematics

Sunila had $9\frac{1}{4}$ kg of flour to make bread with. If the recipe says that she needs $1\frac{1}{8}$ kg to make one loaf of bread, how many loafs can she make? Estimate to the nearest whole number.

A. 7

B. 10

C. 8 ✓

D. 9

Q16 Mathematics

In the following expression which number should be added so that it becomes a complete square?

1+3+7+9+11+13

A. 3

B. 5 ✓

C. 1

D. 7

Q17 Mathematics

A sum of money amounts to ₹1600 in two years and ₹1700 in three years, at compounded interest, compounded annually. What is the rate of interest?

A. 6%

B. 7%

C. 6.25% ✓

D. 6.5%

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Q18 Mathematics

The base of an isosceles triangle is 8 cm and one of its equal sides is 5 cm. The height of the vertex opposite to the base from the base is:

A. 5 cm

B. 3 cm ✓

C. 2 cm

D. 4 cm

Q19 Mathematics

If 3 men or 6 boys can complete a task in 20 days, how many days will 6 men and 8 boys take to do the same task?

A. 6 ✓

B. 10

C. 16

D. 15

Q20 Mathematics

What is the smallest number which when increased by 3 is divisible by 27, 35, 25 and 21?

A. 4728

B. 317

C. 4725

D. 4722 ✓

Q21 Mathematics

Avinash, Bhuvnesh and Chaman can complete a piece of work in 20, 30 and 60 days respectively. In how many days can Avinash complete the work if he is assisted by Bhuvnesh and Chaman on every third day?

A. 16

B. 18

C. 15 ✓

D. 12

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Q22 Mathematics

Number 0.232323 can be written in rational form as:

A. $\frac{23}{99}$ ✓

B. $\frac{23}{990}$

C. $\frac{23}{999}$

D. $\frac{23}{9}$

Q23 Mathematics

The sum of two numbers is 20 and their difference is 2.5 . Ratio of these numbers will be:

A. 3 : 5

B. 9 : 7 ✓

C. 2 : 7

D. 7 : 9

Q24 Mathematics

If the difference between a number and its 25% is 24, then the number is:

A. 34

B. 28

C. 32 ✓

D. 40

Q25 Mathematics

On the first day 84500 people visited a trade fair. On the 4^{th} day number reduced to 16900. By what percentage people reduced on the 4^{th} day?

A. 80% ✓

B. 75%

C. 0%

D. 20%

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Q26 Mathematics

Solve the following.

$$\left[\frac{\left(1+4-\frac{42}{14}+65\right)+\left\{\frac{(2+7\times 9)}{13}\right\}\times[(65+7-19)]+(19-39\times 5)}{369}\right]=?$$

A. 234

B. 224

C. −24 ✓

D. −25

Q27 Mathematics

The value of $\cos 12^\circ + \cos 84^\circ + \cos 168^\circ + \cos 96^\circ$ is:

A. −1

B. 0 ✓

C. 0.5

D. 1

Q28 Mathematics

A metallic part of a machine is made from a mixture of copper, zinc and lead mixed in the ratio of $13 : 6 : 1$. If the weight of zinc in this part is 90 kg, then the total weight of the part will be:

A. 210 kg

B. 195 kg

C. 300 kg ✓

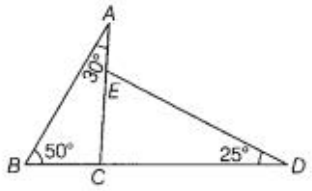
D. 285 kg

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Q29 Mathematics

In the given diagram, if $\angle BAC = 30°$, $\angle ABC = 50°$ and $\angle CDE = 25°$, then $\angle AED$ is equal to:



A. $105°$ ✓

B. $115°$

C. $75°$

D. $95°$

Q30 Mathematics

Parshotam and Anjilka started moving in the opposite directions from the same place at a speed of 30 km/h and 3.5 km/h respectively. How far will they be from each other after 2.5 h?

A. 66.25 km

B. 8.75 km

C. 75 km

D. 83.75 km ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The horizontal distance between two towers is $40\sqrt{3}$ m. The angle of depression of the top of the first tower when seen from the top of the second tower is $30°$. If the height of the second tower is 130 m, find the height of the first tower.

A. 80 m

B. 95 m

C. 85 m

D. 90 m ✓

Q2 Mathematics

The average salary of the entire staff in an office is ₹3,560 per month. The average salary of the officers is ₹5,400 per month and that of the non-officers is ₹2,600 per month. If the number of officers is 12, find the number of non-officers in the office.

A. 25

B. 22

C. 24

D. 23 ✓

Q3 Mathematics

A and B can complete a piece of work in 20 days. B and C can complete it in 30 days. A is twice as good as C in completing the work. Find in how many days will B alone complete it.

A. 55 days

B. 65 days

C. 50 days

D. 60 days ✓

Q4 Mathematics

If $x^4 + \frac{1}{x^4} = 194$, find $x^3 + \frac{1}{x^3}$

A. 56

B. 52 ✓

C. 54

D. 62

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Q5 Mathematics

A and B can complete a job in 40 days and 60 days respectively. They work together for some days and B leaves the job. If A completes the rest of the work in 10 days, find for how many days B worked.

A. 15 days

B. 14 days

C. 18 days ✓

D. 16 days

Q6 Mathematics

Simplify:

$$\frac{12.25+\frac{7}{8}\text{ of }56-9}{(25\div5\times10.25)+\frac{10}{9}\text{of}\left(\frac{7}{2}-\frac{4}{5}\right)-2}$$

A. 2

B. 1 ✓

C. 5

D. 15

Q7 Mathematics

In ΔABC, $\angle A = 90^\circ$, AB = 6 cm and AC = 8 cm. If AD is perpendicular to BC, the AD is equal to:

A. 4.6 cm

B. 4.4 cm

C. 4.8 cm ✓

D. 3.8 cm

Q8 Mathematics

$2(\sin^6\theta+\cos^6\theta)-3(\sin^4\theta+\cos^4\theta)$ is equal to:

A. 1

B. -1 ✓

C. 0

D. 2

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Q9 Mathematics

Four fifths of a number is 12 more than three fourths of the number. Find the number.

A. 120

B. 240 ✓

C. 160

D. 200

Q10 Mathematics

If $\sqrt{1225 \times \sqrt{32 \div x}} = 70$, find the value of x.

A. 8

B. 2 ✓

C. 16

D. 4

Q11 Mathematics

The length, breadth and height of a cuboid are 27 cm, 18 cm and 21 cm respectively. How many cubes of side 3 cm can be cut from the cuboid?

A. 368

B. 378 ✓

C. 278

D. 738

Q12 Mathematics

Simplify:

$$\frac{25 + 3 \text{ of } 8 - 4}{27 - 3 \text{ of } (8 - 4)}$$

A. 4

B. $\frac{37}{15}$

C. 3 ✓

D. 5

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Q13 Mathematics

Simplify: $245 - [135 - \{84 \div 4 \text{ of } 3 - (11 - 12 \div 3)\}]$

A. 90

B. 100

C. 120

D. 110 ✓

Q14 Mathematics

Find the least number, which must be subtracted from 60065 to make it a perfect square.

A. 40 ✓

B. 20

C. 35

D. 30

Q15 Mathematics

The sum of two numbers is 5 times their difference. If the smaller number is 24, find the larger number.

A. 32

B. 48

C. 30

D. 36 ✓

Q16 Mathematics

When the integer m is divided by 8, the remainder is 5. What is the remainder if 7m is divided by 8?

A. 6

B. 3 ✓

C. 4

D. 5

Q17 Mathematics

The sum of two positive numbers is 384 and their HCF is 24. How many pairs of such numbers can be formed?

A. 4 ✓

B. 5

C. 8

D. 3

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Q18 Mathematics

If $a + b = 10$ and $a^2 + b^2 = 68$, find $a^3 + b^3$.

A. 520 ✓

B. 560

C. 620

D. 540

Q19 Mathematics

If $x : y = 4 : 9$, find $9x + 4y : 18x + 3y$

A. $2 : 3$

B. $11 : 8$

C. $3 : 2$

D. $8 : 11$ ✓

Q20 Mathematics

A man travels a distance of 420 km by train which moves at the speed of 75 km/h and returns back by car at the speed of 50 km/h. Find his average speed for the whole journey.

A. 68 km/h

B. 65 km/h

C. 66 km/h

D. 60 km/h ✓

Q21 Mathematics

By selling an article for ₹45,000, a man loses 10%. For what amount should he sell it so as to gain 15%.

A. ₹67,500

B. ₹55,700

C. ₹57,500 ✓

D. ₹75,500

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Q22 Mathematics

A sum of money is invested for 2 years at 10% compound interest p.a. It would fetch ₹1,762 more if interest is calculated half yearly. Find the sum invested.

A. ₹3,40,000

B. ₹3,20,000 ✓

C. ₹3,30,000

D. ₹2,30,000

Q23 Mathematics

If the length and breadth of a rectangular plot of land are increased by 10% and 8% respectively, then by how much percentage will its area increase or decrease?

A. 16.8% decrease

B. 18.8% decrease

C. 18.8% increase ✓

D. 16.8% increase

Q24 Mathematics

Anil Kumar took a loan of ₹24,000 with simple interest for as many years as the rate of interest. If he paid ₹19,440 as interest at the end of the loan period, what was the rate of interest?

A. 8%

B. 9% ✓

C. 8.5%

D. 10%

Q25 Mathematics

Out of three numbers, first number is twice of the second and thrice of the third number. If the average of the three numbers is 880, what is the smallest number?

A. 480 ✓

B. 840

C. 460

D. 420

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Q26 Mathematics

Find the greatest number less than 500 that is divisible by 6, 14 and 28.

A. 480

B. 420 ✓

C. 460

D. 440

Q27 Mathematics

A man walks around a circular pond exactly once. If his step is 44 cm long and he takes 700 steps to go around the pond, find the area of the pond.

A. $6574\ m^2$

B. $7456\ m^2$

C. $6546\ m^2$

D. $7546\ m^2$ ✓

Q28 Mathematics

A shopkeeper marks his goods at a price so that after allowing a discount of 20%, he still makes a profit of 8%. Find the marked price of an article which costs him ₹500.

A. ₹875

B. ₹575

C. ₹765

D. ₹675 ✓

Q29 Mathematics

Triangle ABC is an isosceles triangle in which $\angle C = 90°$.

If AC = 8 cm, find AB.

A. 8 cm

B. 6 cm

C. 10 cm

D. $8\sqrt{2}$ cm ✓

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Q30 Mathematics

In a firm, the ratio of male and female officers is in the ratio $4:7$. If 50 male officers and 100 female officers are shifted to another firm, then the ratio of male and female officers becomes $7:12$. Find the number of male officers before shifting in the firm.

A. 450

B. 300

C. 500

D. 400 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If the ratio between two numbers is 3 : 5 and their LCM is 120, then the numbers are:

A. 21; 35

B. 30; 50

C. 24; 40 ✓

D. 27; 45

Q2 Mathematics

The ratio of the number of females to that of male employees in a small company is 2 : 3. If the number of male employees in the company is 90, then the total number of employees working in the company is:

A. 90

B. 130

C. 150 ✓

D. 120

Q3 Mathematics

Harish and Bimal can complete a task in 20 days. They worked at it for 15 days and then Bimal left. The remaining work was done by Harish alone, in 10 days. Harish alone can complete the entire task in:

A. 40 days ✓

B. 35 days

C. 30 days

D. 45 days

Q4 Mathematics

PQRS is a cyclic trapezium where PQ is parallel to RS and PQ is the diameter. If $\angle QPR = 40°$ then the $\angle PSR$ is equal to:

A. 120°

B. 130° ✓

C. 110°

D. 140°

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Q5 Mathematics

The sum of two numbers is 16 and their product is 63. The sum of their reciprocal is equal to:

A. $\frac{63}{16}$

B. $\frac{8}{63}$

C. $\frac{16}{63}$ ✓

D. $\frac{60}{63}$

Q6 Mathematics

Train A, running at the speed of 80 km/hr crossed train B, running at the speed of 70 km/hr in the opposite direction. Both trains finish crossing each other in 30 seconds. If the length of train A is 300 m, then the length of train B is:

A. 750 m

B. 950 m ✓

C. 855 m

D. 850 m

Q7 Mathematics

27% of 250 – 0.02% of 1000 is equal to:

A. 67.30 ✓

B. 65.52

C. 52.56

D. 76.30

Q8 Mathematics

The sum of two numbers is 25 and their difference is 15. The ratio of the numbers is:

A. 5 : 3

B. 4 : 1 ✓

C. 3 : 2

D. 2 : 3

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Q9 Mathematics

The angle of elevation of a pole from a point, which is 20 m away from the foot of the pole is 45°. Find the height of the pole.

A. 20 m ✓

B. $20\sqrt{2}$ m

C. 10 m

D. 15 m

Q10 Mathematics

A businessman purchases 20 articles whose cost is equal to the selling price of 15 articles. The profit or loss percentage of the businessman is:

A. 15% loss

B. 33.33% profit ✓

C. 23.33% loss

D. 25% profit

Q11 Mathematics

The value of $\frac{(0.27)^2-(0.13)^2}{0.27+0.13}$ is:

A. 0.03

B. 1.40

C. 0.40

D. 0.14 ✓

Q12 Mathematics

If $x^2y^2+\frac{1}{x^2y^2}=83$, then the value of $xy-\frac{1}{xy}$ is:

A. 9 ✓

B. 85

C. 81

D. 10

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Q13 Mathematics

There is a carpet of length $20\frac{5}{2}$ m. How many small pieces of carpet, each of length $4\frac{1}{2}$ m, can be cut out of it?

A. 8

B. 9

C. 7

D. 5 ✓

Q14 Mathematics

A class has 48 students. On a specific day, only $\frac{3}{8}$ of the students were present; the number of absentees on the same day would be:

A. 30 ✓

B. 28

C. 38

D. 18

Q15 Mathematics

The capacity of a cylindrical tank is 2376 m^3. If the radius of the tank is 21 m, then the depth of the tank is:

A. 3.72 m

B. 5.75 m

C. 1.71 m ✓

D. 2.89 m

Q16 Mathematics

15 male employees or 20 female employees of a company can complete a project in 26 days. How long will 30 male employees and 12 female employees together take to complete the project?

A. 12 days

B. 14 days

C. 10 days ✓

D. 8 days

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Q17 Mathematics

The difference between the simple interest and the compound interest on ₹5000/- at 10% per annum for 3 years is:

A. ₹155 ✓

B. ₹235

C. ₹233

D. ₹480

Q18 Mathematics

The perimeters of two similar triangles, ΔPQR and ΔXYZ are 48 cm and 24 cm respectively. If XY = 12 cm, then PQ is:

A. 24 cm ✓

B. 8 cm

C. 12 cm

D. 18 cm

Q19 Mathematics

The HCF of two numbers is 6 and their LCM is 84. If one of these numbers is 42, then the second number is:

A. 48

B. 30

C. 40

D. 12 ✓

Q20 Mathematics

The marks obtained by 7 students in a class in mathematics are 43, 44, 65, 41, 53, 65 and 62. The mode of the data is:

A. 53

B. 62

C. 65 ✓

D. 41

Q21 Mathematics

In a school, 60% of the students passed in an examination. If the number of failed candidates is 240, then the number of candidates that have passed is:

A. 410

B. 360 ✓

C. 600

D. 240

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Q22 Mathematics

If the area of a circle is 154 cm^2, then the circumference of the circle is:

A. 11 cm

B. 22 cm

C. 44 cm ✓

D. 36 cm

Q23 Mathematics

If $\tan\theta + \cot\theta = 5$, then the value of $\tan^2\theta + \cot^2\theta + 2\tan^2 60°$ is:

A. 29 ✓

B. $10\sqrt{3}$

C. $29\sqrt{3}$

D. 25

Q24 Mathematics

When a smaller number divides a larger number, we get a quotient of 6 and a remainder of 5. Find the smaller number if the difference between the two numbers is 1540.

A. 307 ✓

B. 620

C. 735

D. 580

Q25 Mathematics

The value of $15 \times 14 - 30 + (3^2 + 17)$ is:

A. 124

B. 154

C. 266

D. 206 ✓

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Q26 Mathematics

If $\sqrt{3^n} = 729$, then the value of n is equal to:

A. 6

B. 12 ✓

C. 8

D. 9

Q27 Mathematics

The value of $\frac{\sin 23^\circ}{\cos 67^\circ} + \frac{\cos 71^\circ}{\sin 19^\circ}$ is:

A. 3

B. 1

C. 2 ✓

D. 0

Q28 Mathematics

A bank provides a loan at the rate of 5% per annum to a trader on an amount of ₹12,50,000 for 5 years. The simple interest to be paid is:

A. ₹2,25,400

B. ₹2,40,600

C. ₹3,12,500 ✓

D. ₹4,20,250

Q29 Mathematics

The value of $\left[(3\sqrt{2}+2) \times (3\sqrt{2}-2)\right]$ of $13 + 15$ is:

A. 616

B. 140

C. 414

D. 197 ✓

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Q30 Mathematics

If $x + \frac{1}{x} = 9$, then the value of $x^2 + \frac{1}{x^2}$ is:

A. 81.01

B. 81

C. 83

D. 79 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the smallest number by which 35280 must be divided so that the quotient is a perfect square.

A. 5 ✓

B. 7

C. 3

D. 4

Q2 Mathematics

Simplify.

$15 - 6.3 \div 7 + 3 \times 1.3 - 2$

A. 19

B. 17

C. 16 ✓

D. 18

Q3 Mathematics

A rhombus has one of its diagonal 65% of the other. A square is drawn using the longer diagonal as side. What will be the ratio of the area of the rhombus to that of the square?

A. 18 : 15

B. 13 : 40 ✓

C. 15 : 18

D. 40 : 13

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Q4 Mathematics

If $\sec\theta = 5x$ and $\tan\theta = \frac{5}{x}$, then the value of $10\left(x^2 - \frac{1}{x^2}\right)$ is:

A. 2

B. $\frac{2}{5}$ ✓

C. $\frac{1}{5}$

D. $\frac{3}{5}$

Q5 Mathematics

For every 18 eggs that Noori buys, three eggs turn out to be rotten. At the same rate, how many good eggs will Noori have if she buys 690 eggs?

A. 585

B. 475

C. 575 ✓

D. 565

Q6 Mathematics

Find the greatest number of five digits, which is exactly divisible by 468.

A. 99486

B. 99468

C. 99684 ✓

D. 99864

Q7 Mathematics

In an isosceles triangle ABC, if AB = AC = 26 cm and BC = 20 cm, find the area of triangle ABC.

A. 260 cm^2

B. 240 cm^2 ✓

C. 220 cm^2

D. 180 cm^2

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Q8 Mathematics

Driving his car at the speed of 30 km/h Vinod reaches his office 5 min late. If his speed is 40 km/h, he reaches the office 3 min early. Find the distance he travels between his residence and his office.

A. 16 km ✓

B. 20 km

C. 15 km

D. 18 km

Q9 Mathematics

When the integer n is divided by 9, the remainder is 4. What is the remainder if 12n is divided by 9?

A. 5

B. 3 ✓

C. 4

D. 2

Q10 Mathematics

20 men and 15 boys can do a piece of work in 10 days. 25 men and 10 boys can do it in 9 days. Find the ratio of the daily work done by a man to that of a boy.

A. 14 : 5

B. 5 : 12

C. 12 : 5 ✓

D. 5 : 14

Q11 Mathematics

Ram Kumar bought two LED TV sets for ₹41,000. By selling one at a profit of 20% and the other at a loss of 15%, he found that the selling prices of both the TV sets are the same. Find his overall gain or loss.

A. ₹200 loss ✓

B. ₹400 gain

C. ₹400 loss

D. ₹200 gain

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Q12 Mathematics

A few lead spheres of diameter 6 cm are dropped into a cylindrical beaker containing some water such that they are fully submerged. If the diameter of the beaker is 9 cm and the water level has risen by 32 cm, find the number of lead spheres dropped into the beaker.

A. 18 ✓

B. 15

C. 16

D. 14

Q13 Mathematics

Simplify.

$17 - 4 \times (5.4 \div 9) + 6 \times 1.9$

A. 28

B. 22

C. 26 ✓

D. 24

Q14 Mathematics

If $a + b + c = 14, ab + bc + ca = 47$ and $abc = 15$ then find the value of $a^3 + b^3 + c^3$.

A. 845

B. 825

C. 835

D. 815 ✓

Q15 Mathematics

By selling a car for ₹1,20,000, David makes a profit of 20%. What will be the selling price of the car if he sells it at 30% profit?

A. ₹1,35,000

B. ₹1,25,000

C. ₹1,40,000

D. ₹1,30,000 ✓

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Q16 Mathematics

The average weight of P, Q and R is 58 kg. If the average weight of P and Q is 54 kg and that of Q and R is 48 kg, then the weight of Q is:

A. 26 kg

B. 32 kg

C. 30 kg ✓

D. 28 kg

Q17 Mathematics

Anil lent ₹7,200 to Dubey for 3 years and ₹8,400 to Raghav for 4 years on simple interest at the same rate of interest and received ₹4,968 in total from them as interest. Find the rate of interest p.a.

A. 8%

B. 12%

C. 9% ✓

D. 10%

Q18 Mathematics

The sum of two numbers is 288 and their HCF is 16. How many pairs of such numbers can be formed?

A. 3 ✓

B. 5

C. 4

D. 2

Q19 Mathematics

24 mango trees, 56 apple trees and 72 orange trees have to be planted in rows such that each row contains the same number of trees of one variety only. Find the minimum number of rows in which the above mentioned trees may be planted.

A. 19 ✓

B. 17

C. 18

D. 15

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Q20 Mathematics

Two cars start from Ahmadabad and run in opposite directions with one car's speed being 200 km/h more than the other. If they are 4500 km apart after 9 h, then the sum of the speeds of both the cars is:

A. 500 km/h ✓

B. 350 km/h

C. 250 km/h

D. 150 km/h

Q21 Mathematics

If $x + x^{-1} = 7$, then find the value of $x^3 + x^{-3}$.

A. 312

B. 332

C. 322 ✓

D. 342

Q22 Mathematics

If x and y are two positive numbers such that

$\sqrt{x} = 8$ and $x^2 + y = 4112$, then find the value of $\sqrt{y}$.

A. 6

B. 16

C. 2

D. 4 ✓

Q23 Mathematics

Find the sum of the numbers between 400 and 500 such that when 8, 12, and 16 divide them, it leaves 5 as remainder in each case.

A. 932

B. 922 ✓

C. 942

D. 912

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Q24 Mathematics

The ratio of the incomes of Amar and Komal is $5:4$ and the ratio of their expenditure is $2:1$. If each of them saves ₹6,000 per month, find Amar's income.

A. ₹10,000 ✓

B. ₹6,000

C. ₹12,000

D. ₹8,000

Q25 Mathematics

The captain of a cricket team of 11 members is 35 years old and the wicket keeper is 5 years older than the captain. If the ages of these two are excluded, the average age of the remaining players is three years less than the average age of the whole team. What is the average age of the whole team?

A. 24 years ✓

B. 28 years

C. 26 years

D. 25 years

Q26 Mathematics

Find the rate of interest for a sum that becomes $\frac{14641}{10000}$ times of itself in 4 years compounded annually.

A. 15%

B. 12%

C. 20%

D. 10% ✓

Q27 Mathematics

Simplify.

$$25 \div 10 - \left\{\frac{7}{4} \times \frac{1}{3}\right\} \times \frac{6}{5} + \frac{14}{3} \times \frac{9}{10} - \left\{\frac{1}{5} \div \frac{1}{25}\right\}$$

A. 1 ✓

B. 10

C. 5

D. 11

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Q28 Mathematics

A number is first decreased by 20% and then increased by 15%. The number so obtained is 64 less than the original number. The original number is:

A. 800 ✓

B. 850

C. 600

D. 700

Q29 Mathematics

ABC is a right-angled triangle. A circle is inscribed in it. The length of the two sides containing the right angle are 10 cm and 24 cm. Find the radius of the circle.

A. 5 cm

B. 3 cm

C. 2 cm

D. 4 cm ✓

Q30 Mathematics

Find the value of $\tan 15^\circ + \cot 15^\circ$

A. 4 ✓

B. 6

C. 8

D. 2

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A shopkeeper incurs a loss of 20% after selling a machine for ₹4800. In order to gain a profit of 20%, at what price should the shopkeeper sell the same machine?

A. ₹7200 ✓

B. ₹6000

C. ₹6600

D. ₹7500

Q2 Mathematics

If the denominator of a rational number is of the form 2^n5^m, where n and m are non-negative integers, then what will be the decimal expansion of the number?

A. Non-terminating and non-recurring

B. Non-terminating but recurring

C. Terminating ✓

D. Can't be determined

Q3 Mathematics

The difference between the compound interest and the simple interest on a sum of money at 10% for 2 years (compounded annually) is ₹50. The sum of money is:

A. ₹5,000 ✓

B. ₹4,000

C. ₹2,500

D. ₹4500

Q4 Mathematics

What is the least number, which when divided by 12, 21 and 35, leaves the same remainder 6?

A. 420

B. 576

C. 414

D. 426 ✓

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Q5 Mathematics

The exterior angles of any polygon sum up to:

A. $180°$

B. $90°$

C. $360°$ ✓

D. $270°$

Q6 Mathematics

Anil alone can complete a task in 6 days and Bhushan alone can complete it in 8 days. Anil and Bhushan undertook the task for ₹3,200. With the help of Chaman, they completed the task in 3 days. What is Chaman's share in this earning?

A. ₹375

B. ₹600

C. ₹400 ✓

D. ₹800

Q7 Mathematics

The value of $\sqrt{\frac{36.1}{102.4}}$ is:

A. $\frac{6.1}{34}$

B. $\frac{19}{32}$ ✓

C. $\frac{19}{34}$

D. $\frac{19}{31}$

Q8 Mathematics

Anil and Balbeer can finish a task in 3 days. They started working together, but after 2 days Anil got injured. Balbeer took 2 more days to finish the task. In how many days can Balbeer alone finish the same task?

A. 10

B. 9

C. 5

D. 6 ✓

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Q9 Mathematics

Which of the following is NOT a rational number?

$\sqrt{3^2+4^2}$, $\sqrt{12.96}$, $\sqrt{125}$ and $\sqrt{900}$

A. $\sqrt{900}$

B. $\sqrt{125}$ ✓

C. $\sqrt{3^2+4^2}$

D. $\sqrt{12.96}$

Q10 Mathematics

The value of $\frac{2}{5} \times 350 + 30\%$ of 250 is:

A. 125

B. 215 ✓

C. 225

D. 115

Q11 Mathematics

If $x^2 - 4x + 1 = 0$, what is the value of $x^2 + \frac{1}{x^2}$?

A. 18

B. 16

C. 14 ✓

D. 15

Q12 Mathematics

The sum of the deviations about the mean is always:

A. positive

B. zero ✓

C. the range

D. the total standard deviation

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Q13 Mathematics

If the dimensions of a room are 2 m, 3 m and 4 m, then how many cubes of size $\frac{1}{2}$ m × $\frac{1}{3}$ m × $\frac{1}{4}$ m can be placed in the same room?

A. 676

B. 760

C. 576 ✓

D. 672

Q14 Mathematics

If the price of a grocery item consumed by a family increases by 25%, then by what percentage should its consumption reduce, so as to keep the expenditure on this item unchanged?

A. 20% ✓

B. 25%

C. 67%

D. 50%

Q15 Mathematics

The value of $\sin(45° + A) - \cos(45° - A)$ is:

A. 2cosA

B. 2sinA

C. 0 ✓

D. 1

Q16 Mathematics

The value of $\sin 15°$ is:

A. $\frac{\sqrt{3}-1}{2\sqrt{2}}$ ✓

B. $\frac{1}{\sqrt{2}}$

C. $\frac{\sqrt{3}-1}{\sqrt{3}+1}$

D. $\frac{\sqrt{3}+1}{2\sqrt{2}}$

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Q17 Mathematics

The value so obtained on adding the sum and the difference of the numbers 3.03 and 2.05, is:

A. 60.06

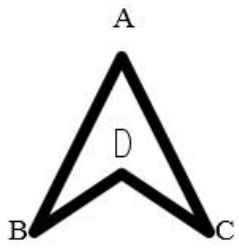
B. 600.6

C. 6.06 ✓

D. 0.606

Q18 Mathematics

In the given figure, $\angle ABD = 55°$ and $\angle ACD = 30°$. If $\angle BAC = y°$ and non-reflex $\angle BDC = x°$, then what is the value of $x - y$?



A. 95

B. 105

C. 85 ✓

D. 15

Q19 Mathematics

Which point on the given number line represents $\frac{6}{5}$?



A. R ✓

B. W

C. S

D. K

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Q20 Mathematics

A bus passes two persons moving in the direction of the moving bus at a speed of 3 km/h and 5 km/h, respectively. The bus passes the first person in 10 s and the second person in 11 s. The speed of the bus is:

A. 27 km/h

B. 25 km/h ✓

C. 24 km/h

D. 28 km/h

Q21 Mathematics

If $x = 2$ and $y = 5$, evaluate $5xy - y^2$.

A. 20

B. 25 ✓

C. 40

D. 0

Q22 Mathematics

Which of the following statements is true?

A. Every complex number can be expressed in the form of a real number.

B. Every integer is natural number.

C. Every real number can be written in the complex form. ✓

D. Every real number is an integer.

Q23 Mathematics

The value of

$1 \div \left\{\frac{1}{2} + \frac{1}{3} + \frac{1}{6} \div \left(\frac{3}{4} - \frac{1}{3}\right)\right\}$ is:

A. $\frac{5}{12}$

B. $\frac{1}{12}$

C. 1

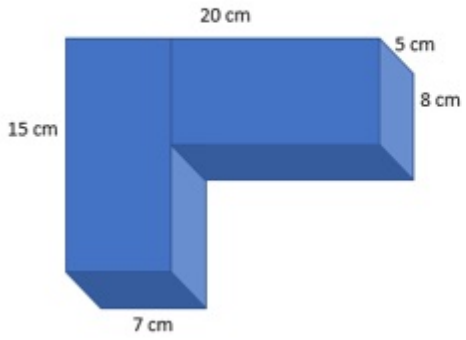
D. $\frac{30}{37}$ ✓

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Q24 Mathematics

What is the total surface area of the visible faces in the given figure?



A. $384\ cm^2$ ✓

B. $905\ cm^2$

C. $580\ cm^2$

D. $1325\ cm^2$

Q25 Mathematics

An airplane is carrying 500 passengers, of which 45% are men and 20% are children. The ratio of the number of men, women and children in the lowest terms is:

A. 4 : 7 : 9

B. 7 : 4 : 9

C. 9 : 7 : 4 ✓

D. 9 : 4 : 7

Q26 Mathematics

Find the value of $7 + 5 - 2 \times (7 + 89) - 94 \div 2 + (33 \div 3 + 9 \times 2 - 7) \div 11$.

A. –245

B. –235

C. 245

D. –225 ✓

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Q27 Mathematics

The ratio of two weights, 27 kg and 108 g, is:

A. 240 : 1

B. 270 : 1

C. 250 : 1 ✓

D. 300 : 1

Q28 Mathematics

How many factors of the number 21600 are perfect squares?

A. 12 ✓

B. 6

C. 15

D. 10

Q29 Mathematics

Shakila incurs a loss of 10% after selling a machine part for ₹540. In order to gain a profit of 10%, at what price should Shakila sell the same part?

A. ₹60

B. ₹550

C. ₹660 ✓

D. ₹600

Q30 Mathematics

In a frequency distribution, the mid value of a class is 12 and its width is 6. The lower limit of the class is:

A. 12

B. 9 ✓

C. 6

D. 18

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If 35% of x is 140, then what is the value of x?

A. 300

B. 450

C. 400 ✓

D. 335

Q2 Mathematics

The perimeters of two similar triangles ΔABC and ΔPQR are 36 cm and 24 cm respectively. If PQ = 10 cm, then what is the measure of AB?

A. 15 cm ✓

B. $\frac{20}{3}$ cm

C. $\frac{200}{3}$ cm

D. $\frac{10\sqrt{6}}{3}$ cm

Q3 Mathematics

35 people could complete a work in 24 days. But after they worked together for 6 days, their employer wanted that the work should be completed in a total of 16 days. How many more workers need to be employed to meet the deadline?

A. 20

B. 24

C. 28 ✓

D. 32

Q4 Mathematics

Five bells commence tolling together and toll at intervals of 2, 4, 6, 8, 10 seconds respectively. In 30 minutes, how many times do they toll together?

A. 15

B. 18

C. 14

D. 16 ✓

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Q5 Mathematics

$A + 0 = 0 + A = A$, where A is a real number is true because of:

A. the associative property of addition

B. the additive property of zero ✓

C. the inverse property of addition

D. the commutative property of addition

Q6 Mathematics

Simplify the following:

$72 - 52 + 32 \div 2 \times 32 \div 8$

A. 78

B. 84 ✓

C. 48

D. 80

Q7 Mathematics

If $\frac{1}{5\sqrt{2}-7} = a\sqrt{2} + b$, then the value of a and b are:

A. 5, 7 ✓

B. 5, −7

C. −7, 5

D. 7, 5

Q8 Mathematics

The present population of a town is 50,000. If the population of the town increases by 4% annually, then what will be the population after 2 years?

A. 58,400

B. 54,840

C. 54,080 ✓

D. 54,280

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Q9 Mathematics

4% more is gained by selling a table for ₹1,800 than by selling it for ₹1,750. What is its cost price?

A. ₹12,500

B. ₹50

C. ₹125

D. ₹1,250 ✓

Q10 Mathematics

Find the value of $[\{(2)^2\}^2]^2$

A. 2^8 ✓

B. 2^4

C. 2^{32}

D. 2^{16}

Q11 Mathematics

Two walls of equal height are on either side of a road, which is 100 m wide. At a point on the road two stairs are along the two walls in such a way that they indicate the two angles of elevation from that point at 60° and 30°. The length of the longer stair is:

A. $50\sqrt{3}$ m ✓

B. 50 m

C. $\frac{50\sqrt{3}}{3}$ m

D. 75 m

Q12 Mathematics

Which of the following is correct, when a formula has its symbolic meaning

(A - Amount, P- Principal, SI - simple interest)?

A. $A = P + SI$ ✓

B. $P - A = 2SI$

C. $P = A + SI$

D. $A + P = SI$

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Q13 Mathematics

The area of a rhombus is 96 cm^2 and one of its diagonals is 16 cm. What is the length of its side?

A. 12 cm

B. 18 cm

C. 15 cm

D. 10 cm ✓

Q14 Mathematics

Simplify the following:

$$\left\{\frac{\left(\frac{7}{2}\div\frac{5}{2}\times\frac{3}{2}\right)}{\left(\frac{7}{2}\div\left(\frac{5}{2}\times\frac{3}{2}\right)\right)}\right\}\div 5.25$$

A. $\frac{1}{2}$

B. $\frac{3}{5}$

C. $\frac{3}{8}$

D. $\frac{3}{7}$ ✓

Q15 Mathematics

Find the value of $0.4+\frac{404}{1000}$

A. 0.804 ✓

B. 804

C. 80.4

D. 0.0804

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Q16 Mathematics

What fraction of the numbers from 2 to 12 are composite numbers?

A. $\frac{1}{11}$

B. $\frac{10}{11}$

C. $\frac{6}{11}$ ✓

D. $\frac{5}{11}$

Q17 Mathematics

Amar Jeet Singh can complete a piece of work in 5 days. With the help of his son he can complete it in 3 days. In how many days can the son independently complete the work?

A. $7\frac{1}{2}$ ✓

B. $6\frac{1}{2}$

C. $5\frac{1}{2}$

D. $4\frac{1}{2}$

Q18 Mathematics

The HCF of two numbers is 15 and their LCM is 225. If one of the numbers is 45, then what is the other number?

A. $\frac{15 \times 225}{45}$ ✓

B. $\frac{225}{45}$

C. $\frac{15 \times 45}{225}$

D. 22515

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Q19 Mathematics

$8m^3 - n^3$ is equal to:

A. $(2m - n)(4m^2 + 2mn + n^2)$ ✓

B. $(2m - n)(4m^2 - 2mn + n^2)$

C. $(2m - n)(4m^2 - 4mn + n^2)$

D. $(2m - n)(4m^2 + 4mn + n^2)$

Q20 Mathematics

The sides of certain triangles are given below. Identify the one which is a right angled triangle.

A. $a = 4$ cm, $b = 5$ cm, $c = 7$ cm

B. $a = 5$ cm, $b = 5$ cm, $c = 6$ cm

C. $a = 7$ cm, $b = 24$ cm, $c = 25$ cm ✓

D. $a = 4$ cm, $b = 5$ cm, $c = 6$ cm

Q21 Mathematics

While going from Mumbai to Pune by car, I realized that one of the tyres has two punctures. On the basis of my previous experience, I believed that the first puncture alone would have made the tyre flat in 9 minutes and the second would have done it in 6 minutes. If air leaks out at a constant rate, how long will it take both the punctures together to make the tyre flat?

A. $3\frac{1}{5}$ mins

B. $3\frac{3}{5}$ mins ✓

C. $3\frac{2}{5}$ mins

D. $3\frac{4}{5}$ mins

Q22 Mathematics

The cost of 10 books is ₹560. What is the cost of 56 such books?

A. ₹2,136

B. ₹1,000

C. ₹1,056

D. ₹3,136 ✓

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Q23 Mathematics

x and y vary directly with each other. When x is 10, y is 15. Which of the following is NOT a pair of corresponding values of x and y?

A. 25, 37.5

B. 8, 12

C. 15, 20 ✓

D. 2, 3

Q24 Mathematics

A cylinder and a cone are of the same base radius and the same height. Find the ratio of the volume of the cylinder to that of the cone.

A. 1 : 2

B. 2 : 1

C. 3 : 1 ✓

D. 1 : 3

Q25 Mathematics

$(\sin A + \cos A)^2 - 2\sin A \cos A$ is equal to:

A. $\sin^2 A - \cos^2 A$

B. 1 ✓

C. 2

D. 0

Q26 Mathematics

The value of $0.\overline{23} + 0.\overline{22}$ is:

A. 0.434343....

B. 0.45

C. 0.454545.... ✓

D. 0.4555....

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Q27 Mathematics

In which of the following cases is ΔABC similar to ΔPQR?

A. Sides: AB = 2.5 cm, BC = 4.5 cm, CA = 3.5 cm, PQ = 5 cm, QR = 9 cm, RP = 7 cm ✓

B. Angles: A = 40°, B = 60°, C = 80°, P = 40°, Q = 20°, R = 120°

C. Angles: A = 50°, B = 70°, C = 60°, P = 50°, Q = 60°, R = 70°

D. Sides: AB = 3 cm, BC = 7.5 cm, CA = 5 cm, PQ = 4.5 cm, QR = 7.5 cm, RP = 6 cm

Q28 Mathematics

If the radius of a sphere is doubled, what will be the ratio of the volume of the new sphere to that of the original sphere?

A. 1 : 2

B. 8 : 1 ✓

C. 2 : 1

D. 1 : 8

Q29 Mathematics

The sum of the class marks of the classes 90–120 and 120–150 is:

A. 170

B. 210

C. 240 ✓

D. 220

Q30 Mathematics

If $\sin 2A = 2 \sin A$, then A =?

A. 30°

B. 60°

C. 0° ✓

D. 90°

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

When 5 men can build a wall in 12 days, to build a wall 50% more than the original wall in 10 days, the number of men required is:

A. 4

B. 8

C. 7

D. 9 ✓

Q2 Mathematics

In the parallelogram ABCD, AL and CM are perpendicular to CD and AD respectively. AL = 20 cm, CD = 18 cm and CM = 15 cm. The perimeter of the parallelogram is:

A. 80 cm

B. 84 cm ✓

C. 76 cm

D. 64 cm

Q3 Mathematics

If $P = 2+\sqrt{3}, Q = 2-\sqrt{3}$, then $\frac{P}{Q} = ?$

A. $\frac{7+4\sqrt{3}}{1}$ ✓

B. $4\sqrt{6}+5$

C. $7-2\sqrt{6}$

D. $4\sqrt{3}-5$

Q4 Mathematics

If $\sqrt{3}\tan 2\theta - 3 = 0$, then θ is:

A. 60°

B. 45°

C. 150°

D. 30° ✓

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Q5 Mathematics

The difference between the mean of first 5 composite numbers and the mean of the first five prime numbers is:

A. 1.8 ✓

B. 2.4

C. 1.6

D. 2.6

Q6 Mathematics

The ratio of two numbers is $2:3$. When 4 is added to the numbers, the ratio becomes $7:10$. The difference between the numbers is:

A. 12 ✓

B. 10

C. 08

D. 24

Q7 Mathematics

Three electronic bells are fixed in three adjoining temples. The priests of these temples decided to ring the bells at different times with the intervals of 2, 3 and 5 min. If the bells start tolling together for the first time at 8:00:00 in the morning, up to 9:00:00 in the morning they will toll together:

A. 5 times after the starting time

B. 2 times after the starting time ✓

C. 15 times after the starting time

D. 4 times after the starting time

Q8 Mathematics

In an examination a student scored 65% marks but was 20 marks below the qualifying marks. Another student scored 80% marks and scored 5% more marks than the qualifying marks. Total marks of the examination are:

A. 500

B. 200 ✓

C. 300

D. 400

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Q9 Mathematics

A sum of ₹12,000.00 deposited at compound interest becomes double at the end of 5 years. At the end of 15 years the sum will be:

A. ₹1,08,000.00

B. ₹1,20,000.00

C. ₹84,000.00

D. ₹96,000.00 ✓

Q10 Mathematics

A circle touches the side BC of triangle ABC at P. Side AB and AC are produced to touch the circle at points Q and R respectively. The length of AQ is:

A. $\frac{1}{2}(BC + CA + AB)$ ✓

B. $\frac{1}{2}(2BC + 2CA + 2AB)$

C. $\frac{1}{3}(BC + CA + AB)$

D. $\frac{1}{4}(BC + CA + AB)$

Q11 Mathematics

From the top of a building, 60 m high, the angles of depression of the top and the bottom of a tower are 30° and 60° respectively. The height of the tower is:

A. 18 m

B. 40 m ✓

C. 30 m

D. 42 m

Q12 Mathematics

When the shadow of a pole of 10 m height is $10\sqrt{3}$ m, the angular elevation of the Sun is:

A. 30° ✓

B. 60°

C. 90°

D. 75°

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Q13 Mathematics

The difference between the compound interest compounded annually and the simple interest on a certain sum of money for 2 years at 4% per annum is ₹20.00. The sum is:

A. ₹11,500.00

B. ₹8,500.00

C. ₹12,500.00 ✓

D. ₹10,500.00

Q14 Mathematics

If the difference between squares of two consecutive positive odd integers is 56, then the two consecutive odd integers are:

A. 13, 15 ✓

B. 11, 13

C. 15, 17

D. 17, 19

Q15 Mathematics

The value of a car depreciates at the rate of 20% every year. After two years the value of the car will be ₹4,80,000/-. The original price of the car is:

A. ₹5,50,300/-

B. ₹6,00,000/-

C. ₹7,50,000/- ✓

D. ₹6,20,000/-

Q16 Mathematics

A sector is cut off from a circle of radius 21 cm. The angle of the sector is 40 degrees. Find the area of the sector in square cm?

A. 156

B. 154 ✓

C. 144

D. 145

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Q17 Mathematics

By reducing the selling price of an article by ₹50.00, a gain of 5% turns into a loss of 5%. Original selling price is:

A. ₹550.00

B. ₹525.00 ✓

C. ₹600.00

D. ₹500.00

Q18 Mathematics

In a school, the number of boys and girls were in the ratio 5 : 7 . Eight more boys were admitted during the session. The new ratio of girls and boys is 1 : 1 . In the beginning the difference between the number of boys and that of girls was:

A. 10

B. 12

C. 02

D. 08 ✓

Q19 Mathematics

Devesh leaves his home every day at 7 a.m. and reaches office at 8:30 a.m. One day he left his home at 7 a.m. but travelled a fifth of the distance at $\frac{5}{6}$ of the usual speed and the rest of the distance at $\frac{6}{5}$ of the usual speed. Approximately at what time did Devesh reach office on that day?

A. 8:40 a.m.

B. 8:25 a.m.

C. 8:21 a.m. ✓

D. 8:36 a.m.

Q20 Mathematics

When a number n is divided by 5, the remainder is 2. When n^2 is divided by 5, the remainder will be:

A. 3

B. 0

C. 4 ✓

D. 1

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Q21 Mathematics

Two men start travelling from the same place in the same direction at the rate of 5 km/h and 5.5 km/h respectively. To be 8.5 km apart from each other, the time taken by them is:

A. 16 h 15 min

B. 17 h ✓

C. 4 h 15 min

D. 8 h 30 min

Q22 Mathematics

If $x\sqrt{12} = 4 + x\sqrt{3}$, the value of x is:

A. $\frac{4}{\sqrt{3}}$ ✓

B. $\sqrt{3}$

C. $-\sqrt{3}$

D. $2\sqrt{3}$

Q23 Mathematics

The denominator of a fraction is 2 more than the numerator. When the numerator is multiplied by 3 and the denominator is multiplied by 2 the fraction becomes $\frac{1}{2}$. The given fraction is:

A. $\frac{2}{3}$

B. $\frac{1}{3}$ ✓

C. $\frac{1}{4}$

D. $\frac{2}{5}$

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Q24 Mathematics

Simplify the following.

$$2.2 \times 0.2 \div \left(0.4 \times \frac{1}{2}\right) - \frac{1}{2} \times 4(1.04 - 0.2 \times 0.2)$$

A. 0.3

B. 0.6

C. 0.2 ✓

D. 0.5

Q25 Mathematics

Simplify the following.

$$\frac{1}{2} \div \left(\frac{1}{2} \times \frac{1}{2}\right) \times \frac{1}{2} + \frac{1}{2} \div \left(\frac{1}{4} \times \frac{3}{4}\right)$$

A. $\frac{11}{8}$

B. $\frac{11}{3}$ ✓

C. $\frac{11}{2}$

D. $\frac{4}{3}$

Q26 Mathematics

If $x : y = 3 : 4, (4x + 3y) : (4y - 4x) = ?$

A. $2 : 3$

B. $6 : 1$ ✓

C. $1 : 6$

D. $3 : 2$

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Q27 Mathematics

The least multiple of 23 when divided by 18, 21 and 24 leaves the remainder 7, 10 and 13 respectively. The number is:

A. 3131

B. 3013 ✓

C. 3103

D. 3113

Q28 Mathematics

One root of the equation $2x^2 - 8x - m = 0$, is $\frac{5}{2}$.

The other root of the equation and the value of m are respectively:

A. $\frac{5}{2}$ and $-\frac{15}{2}$

B. $\frac{3}{2}$ and $-\frac{15}{2}$ ✓

C. $-\frac{5}{2}$ and $\frac{15}{2}$

D. $-\frac{3}{2}$ and $\frac{15}{2}$

Q29 Mathematics

The least number that should be added to the largest three digit number to make it a perfect square, is:

A. 01

B. 12

C. 25 ✓

D. 24

Q30 Mathematics

When the side of an equilateral triangle is made three times the original side, the area of the new equilateral will become:

A. 3 times of the original area

B. 6 times of the original area

C. 9 times of the original area ✓

D. 12 times of the original area

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Let $f(x) = x^2$, in R, then the range of f will be:

A. non negative numbers

B. positive real numbers ✓

C. integers

D. negative real numbers

Q2 Mathematics

The length of each side of a square whose diagonals are 10 cm each, is:

A. 5 cm

B. $10\sqrt{2}$ cm

C. $5\sqrt{2}$ cm ✓

D. 7 cm

Q3 Mathematics

The selling price of 9 articles is equal to the cost price of 15 articles. In this transaction there is a:

A. gain of 40%

B. gain of 66.6% nearly ✓

C. loss of 40%

D. loss of 66.6% nearly

Q4 Mathematics

$3 + 2\sqrt{5}$ is:

A. a rational number

B. a complex number

C. a natural number

D. an irrational number ✓

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Q5 Mathematics

$\sqrt{8-2\sqrt{15}}$ is equal to:

A. $\sqrt{5}+\sqrt{3}$

B. $3-\sqrt{5}$

C. $5-\sqrt{3}$

D. $\sqrt{5}-\sqrt{3}$ ✓

Q6 Mathematics

Value of A for the equation:

$\tan A+\tan 2A+\tan 3A=\tan A\tan 2A\tan 3A$ is

A. $\frac{\pi}{3}\,only$

B. $\frac{\pi}{3},\frac{2\pi}{3}$ ✓

C. $\frac{2\pi}{3}\,only$

D. $\frac{5\pi}{6}$

Q7 Mathematics

Since the HCF of $(48, 144) = 48$,

therefore the LCM of $(48, 144) = ?$

A. 3

B. 48

C. 48×144

D. 144 ✓

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Q8 Mathematics

The population of a town increases by 10% every year. If the present population is 20,000, in the next year it will be:

A. 2,200

B. 22,000 ✓

C. 18,000

D. 1,800

Q9 Mathematics

Moving along a circular path, Ansh takes 18 minutes to complete one round and Siddhi takes 12 minutes for the same. If they start from the same point and at the same time, then after what time they will meet again at the starting point?

A. 216 minutes

B. 1.5 minute

C. 36 minutes ✓

D. 6 minutes

Q10 Mathematics

Decimal expansion of $\frac{109}{100}$ is:

A. $1+\frac{9}{10}$

B. $10+\frac{9}{100}$

C. $1+\frac{0}{10}+\frac{9}{100}$ ✓

D. $100+9+\frac{0}{100}$

Q11 Mathematics

A certain sum of money was divided among three friends: Rajeev, Kewal and Amit in the ratio of 2 : 3 : 7. If Amit's share is ₹15 more than that of Kewal, then what is the sum of money which was divided :

A. ₹180

B. ₹45 ✓

C. ₹57

D. ₹27

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Q12 Mathematics

Ali can complete a piece of work in 8 days. Balvinder can complete the same work in 10 days. In order to complete the work in 4 days, they asked Chander to join them and were able to finish the work in time. In how many days can Chander alone finish the work?

A. 14 days

B. 12 days

C. 40 days ✓

D. 20 days

Q13 Mathematics

The fractions $\frac{1}{3}, \frac{4}{7}, \frac{2}{5}$ written in ascending order are:

A. $\frac{1}{3}, \frac{2}{5}, \frac{4}{7}$ ✓

B. $\frac{4}{7}, \frac{1}{3}, \frac{2}{5}$

C. $\frac{2}{5}, \frac{4}{7}, \frac{1}{3}$

D. All the fractions are equivalent fractions.

Q14 Mathematics

A train is travelling 50% faster than a bus. Both start from Karnal at the same time and reach Panipat, which is 75 km from Karnal at the same time. On the way however, the train stopped at a station for about 12.5 minutes. The speed of the bus is:

A. 100 km/h

B. 130 km/h

C. 120 km/h ✓

D. 110 km/h

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Q15 Mathematics

Amit alone can complete a piece of work in 15 days and Balbir alone can do the same work in 10 days.

If Amit alone works for 3 days after which Balbir joins him, then the work will be finished in how many days?

A. $7\frac{4}{5}$ days ✓

B. $4\frac{4}{5}$ days

C. $\frac{1}{6}$ days

D. $\frac{4}{5}$ days

Q16 Mathematics

To gain 25% after announcing a discount of 10%, the shopkeeper must mark the price of the article with cost price ₹360 as:

A. ₹486

B. ₹450

C. ₹500 ✓

D. ₹460

Q17 Mathematics

The space diagonal of a cube measures $8\sqrt{3}$ cm. What is the volume of the cube?

A. $512\sqrt{3}$ cm^3

B. 1536 cm^3

C. 512 cm^3 ✓

D. $1536\sqrt{3}$ cm^3

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Q18 Mathematics

Select the number that can replace the question mark (?) in the following equation.

$$12 + 8 - 5 \times \frac{1}{2} \times 12 - \{45 \div (34 - 19)\} = ?$$

A. -25

B. -13 ✓

C. -10

D. 13

Q19 Mathematics

In any triangle ABC, a + b + c = 2s with usual notation, then $\text{Sin}\left(\frac{A}{2}\right) =$

A. $\sqrt{\frac{(s-b)(s-c)}{bc}}$ ✓

B. $\sqrt{\frac{(s-b)(s-c)}{s(s-a)}}$

C. $\sqrt{\frac{(s-c)(s-a)}{ac}}$

D. $\sqrt{\frac{s(s-a)}{bc}}$

Q20 Mathematics

Pragya invited males and females to her birthday party in the ratio of 7 : 6. If the number of males in the party were 56, then the total number of guests attending the party were:

A. 48

B. 108

C. 112

D. 104 ✓

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Q21 Mathematics

By selling a watch for a certain amount, Deepika suffered a loss of 10%. By selling the same watch for ₹140 more, she would have gained 4%. What was the cost price of the watch?

A. ₹860

B. ₹1140

C. ₹760

D. ₹1000 ✓

Q22 Mathematics

Simplify the following equation:

$$\left(4\frac{3}{4}-3\frac{1}{3}\right)\div\left(\frac{3}{4}-\frac{3}{5}\right)+\frac{3}{5}\times\frac{5}{7}\times\frac{7}{9}$$

A. $\frac{452}{135}$

B. $9\frac{7}{9}$ ✓

C. $\frac{85}{29}$

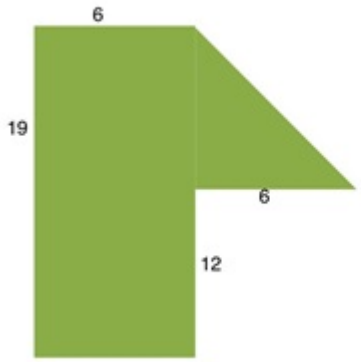
D. $\frac{131}{240}$

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Q23 Mathematics

What is the area of the compound shape?



A. 114 units

B. 114 square units

C. 21 units

D. 135 square units ✓

Q24 Mathematics

Anuj plants 5,625 plants in his garden in such a way that the number of rows and the number of plants in each row remains the same. The number of plants in each row will be:

A. 2812

B. 75 ✓

C. 2813

D. 11250

Q25 Mathematics

The sides of a triangle are in the ratio 3 : 4 : 5 the triangle is:

A. obtuse angled

B. acute angled

C. right angled ✓

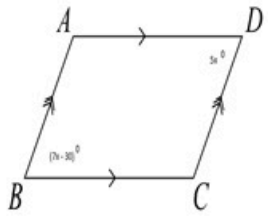
D. either acute angled or right angled

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Q26 Mathematics

Looking at the following figure, where angle B and D are (7x-30)° and 5x° respectively, we can say that the value of x is:



A. 105°

B. 75°

C. 15° ✓

D. 65°

Q27 Mathematics

Bhawna borrowed ₹4,500 from a lender at the rate of 15% per annum, simple interest on 26 March 2018 and cleared the loan on 7 June of the same year. What amount did she pay to clear her loan?

A. ₹53,775

B. ₹135

C. ₹49,275

D. ₹4,635 ✓

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Q28 Mathematics

If a pie chart is drawn based on the data given below, what will be the central angle for food?

No, of families	Item of expenditure
150	Education
400	Food
40	Rent
250	Electricity
160	Miscellaneous

A. $144°$ ✓

B. $90°$

C. $150°$

D. $208°$

Q29 Mathematics

If the mean is 25 and the standard deviation is 5 then the coefficient of variation is:

A. 60%

B. 48%

C. 20% ✓

D. 27%

Q30 Mathematics

Which of the following numbers has a terminating decimal?

$$\frac{15}{600}, \frac{29}{343}, \frac{7}{2^2 \times 7^2}, \frac{77}{210}$$

A. $\frac{29}{343}$

B. $\frac{7}{2^2 \times 7^2}$

C. $\frac{15}{600}$ ✓

D. $\frac{77}{210}$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Two poles of height 20 and 14 meters are joined at the top by a wire which makes an angle of 30° with the horizontal. The length of the wire is:

A. 10 m

B. 16 m

C. 14 m

D. 12 m ✓

Q2 Mathematics

Find the value of

$$\cos^2(270-\emptyset) - \sin^2(180-\emptyset) + \sin^2\left(\frac{\pi}{2}\right)\sin^2(270-\emptyset).$$

A. $\cos^2\emptyset$ ✓

B. $\sin^2(\emptyset) - 1$

C. $\sin^2\emptyset$

D. $\sin^2\left(\frac{\pi}{2}\right)$

Q3 Mathematics

The speed of a boat in still water is 15 km/h. The speed of the current is 3 km/h. The difference between the time taken for upstream and downstream to complete two trips (i.e from one end to the other coming back and repeating the same again) is 10 minutes. What is the distance between the two ends?

A. 2.5 km

B. 2 km

C. 3 km ✓

D. 3.5 km

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Q4 Mathematics

The diagonal of a square is $\sqrt{200}$ cm. If the sides of a rectangle are in the ratio $5:2$, which is the same as the area of the square, then what is the length of the rectangle?

A. $\sqrt{20}$ cm

B. $\sqrt{200}$ cm

C. $2\sqrt{10}$ cm

D. $\sqrt{250}$ cm ✓

Q5 Mathematics

Simplify

$$\frac{3}{4} \div \frac{5}{12} - \frac{1}{3} \times \frac{9}{5}\left(\frac{2}{3} \div \frac{1}{3} - 1\right)$$

A. $\frac{6}{7}$

B. $\frac{5}{6}$

C. $\frac{12}{5}$

D. $\frac{6}{5}$ ✓

Q6 Mathematics

At present the average age of 20 students of class ten is 15.5 years. The present age of the class teacher is 47 years. What will be the average age of the students and the class teacher after 5 years?

A. 22 years ✓

B. 21.5 years

C. 21.8 years

D. 22.5 years

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Q7 Mathematics

Two numbers are in the ratio 19 : 17. Their HCF is 11. Find the numbers.

A. 209, 187 ✓

B. 190, 170

C. 221, 247

D. 1700, 1900

Q8 Mathematics

Rahim invested a certain sum at 5% simple interest for 3 years. His friend Hiralal invested the same sum for 2 years at 7% simple interest. Rahim got ₹30 more interest than Hiralal. What was the amount invested by them?

A. ₹2,000.00

B. ₹3,000.00 ✓

C. ₹5,000.00

D. ₹7,000.00

Q9 Mathematics

If the number 356yx is divisible by 90, then $(y - x)$ is:

A. 1

B. 3

C. 2

D. 4 ✓

Q10 Mathematics

If –5 is a root of the quadratic equation $2x^2 + px - 15 = 0$ and also of the quadratic equation $p(kx^2 + x) = 0$, then what are the values of p and k?

A. –7, 0.4

B. –7, –0.2

C. 7, –0.2

D. 7, 0.2 ✓

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Q11 Mathematics

Simplify

$$1.8+2\times\frac{3}{2}\times\frac{1}{2}\left\{\frac{2}{5}\div\left(\frac{3}{5}\times\frac{2}{3}\right)\times\frac{3}{2}-1\right\}$$

A. -1

B. 2.55 ✓

C. 0.2

D. 1

Q12 Mathematics

In a school the ratio of the number of boys and girls is $5:6$. 20% boys and 25% girls are scholarship holders. How many students did not get a scholarship?

A. $\left(\frac{750}{11}\right)\%$

B. $\left(\frac{8000}{11}\right)\%$

C. $\left(\frac{950}{11}\right)\%$

D. $\left(\frac{850}{11}\right)\%$ ✓

Q13 Mathematics

A student takes 1.5 hours from home to school at a speed of 5 km/h. By what percent should he increase his speed to reduce the time by 20% and cover the same distance from school to home?

A. 16%

B. 15%

C. 25% ✓

D. 20%

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Q14 Mathematics

25% of a number is 7 more than 30% of another number. The difference between the numbers is 29. What are the numbers?

A. 39 and 10

B. 40 and 11

C. 37 and 8

D. 34 and 5 ✓

Q15 Mathematics

A guard observes an enemy boat, from an observation tower at a height of 180 meters above the sea level, to be at an angle of depression of $60°$. What is the distance of the boat from the foot of the tower?

A. $30\sqrt{3}$ m

B. $\frac{30}{\sqrt{3}}$ m

C. $\frac{60}{\sqrt{3}}$ m

D. $60\sqrt{3}$ m ✓

Q16 Mathematics

The floor of a hall measuring 16 meters in length and 12 meters in width is to be paved with square tiles. If the least number of tiles are to be used, then what is the length of each square tile?

A. 12 meters

B. 48 meters

C. 4 meters ✓

D. 24 meters

Q17 Mathematics

Find the approximate value of

$(2.697 + 0.498)^2 - (2.697 - 0.498)^2$

A. 3.195

B. 2.00

C. 2.199

D. 5.37 ✓

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Q18 Mathematics

In an election, there were only two candidates. The losing candidate got 48% of the total votes. His opponent got 6000 votes more and won by a margin of 3% votes. What was the number of invalid votes?

A. 3000

B. 6000

C. 2000 ✓

D. 3200

Q19 Mathematics

Two angles of a triangle are in the ratio $1:2$ and the sum of these angles is equal to the third angle. What is the measure of the smallest angle?

A. $25°$

B. $30°$ ✓

C. $20°$

D. $40°$

Q20 Mathematics

A man standing on the banks of a river observes that the angle subtended by a tree on the opposite bank is $60°$. He walks 36 meters backward on the bank and observes the angle to be $30°$. What is the breadth of the river?

A. 20 meters

B. 28 meters

C. 18 meters ✓

D. 10 meters

Q21 Mathematics

Rajni can do 25% less work than Mohan and Mohan can do 20% more work than Rizwan. At the end of the completion of the work, what will be Mohan's share out of the profit of ₹930?

A. ₹260

B. ₹300

C. ₹350

D. ₹360 ✓

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Q22 Mathematics

The difference between two numbers is 5. If 25 is subtracted from the smaller number and 20 is added to the greater number the ratio becomes $1:2$. What is the greater number?

A. 85

B. 90

C. 75

D. 80 ✓

Q23 Mathematics

Three friends arranged a party. Tanveer paid $\frac{2}{3}$ as much as Yusuf paid. Yusuf paid $\frac{1}{2}$ as much as Sachin paid.

The fraction of the total expenditure by Yusuf was:

A. $\frac{7}{11}$

B. $\frac{5}{11}$

C. $\frac{2}{11}$

D. $\frac{3}{11}$ ✓

Q24 Mathematics

A drum of water is $\frac{3}{4}$ full. When 9 litres of water is drawn from it, it is $\frac{1}{2}$ full. What is the capacity of the drum?

A. 28 litres

B. 20 litres

C. 27 litres

D. 36 litres ✓

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Q25 Mathematics

The area of triangle ABC is 39 cm^2 . D and E are two points on BC such that BD = DE = EC, then what is the area of triangle ADC?

A. 13 cm^2

B. $\frac{9}{4}$ cm^2

C. $26cm^2$ ✓

D. $52cm^2$

Q26 Mathematics

The product of any two even consecutive numbers is always divisible by:

A. 6

B. 8 ✓

C. 16

D. 12

Q27 Mathematics

The price of sugar increased by 10%. A family of 5 members did not want to increase their expenditure. What is the percentage reduction in their consumption of sugar?

A. $9\frac{1}{11}$ ✓

B. 8

C. 10

D. 12

Q28 Mathematics

The difference between the fractions 5 minutes of an hour and 20 seconds of an hour is:

A. $\frac{7}{12}$

B. $\frac{28}{270}$

C. $\frac{16}{180}$

D. $\frac{0.7}{9}$ ✓

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Q29 Mathematics

Three consecutive integers when taken in increasing order and multiplied by 2, 3 and 4 respectively adds up to 74. What is the greatest number?

A. 14

B. 9 ✓

C. 10

D. 8

Q30 Mathematics

A sum of money becomes ₹10648 after 3 years and ₹9680 after 2 years of compound interest computed yearly. What is the rate of interest?

A. 10% ✓

B. 8%

C. 12%

D. 9%

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A alone can complete a work in 10 days and B can complete it in 15 days. A and B undertake the work for ₹4,800. With the help of C, they complete the work in 5 days. What amount is to be paid to C?

A. ₹1,200
B. ₹600
C. ₹700
D. ₹800 ✓

Q2 Mathematics

In an election the votes cast for two candidates were in the ratio 2 : 9. If the successful candidate received 984321 votes, find the total votes polled.

A. 1230059
B. 1320059
C. 1302059
D. 1203059 ✓

Q3 Mathematics

In a firm the ratio of male and female members was 4 : 5. The firm decided to increase the number of males by 80% and the number of female by 60%. What will be the new ratio of male members to female members in the firm?

A. 8 : 10
B. 9 : 10 ✓
C. 18 : 15
D. 15 : 16

Q4 Mathematics

The perimeter of a right triangle is 60 cm and its hypotenuse is 26 cm. Find the area of the triangle.

A. $160\ cm^2$
B. $180\ cm^2$
C. $120\ cm^2$ ✓
D. $240\ cm^2$

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Q5 Mathematics

The compound interest on a certain sum of money at the rate of 11% p.a. for 2 years is ₹4,642. Find its simple interest at the same rate and for the same period.

A. ₹4,400 ✓

B. ₹3,500

C. ₹4,200

D. ₹4,500

Q6 Mathematics

Find the area of a rhombus whose side is 10 cm and the longest diagonal is 16 cm.

A. 86 cm^2

B. 88 cm^2

C. 96 cm^2 ✓

D. 94 cm^2

Q7 Mathematics

A man bought 2 articles for ₹3,000 each. He sold one article at 10% profit and another at 5% profit. Find the total percentage profit he earned.

A. 15%

B. 7.5% ✓

C. 8.5%

D. 6.5%

Q8 Mathematics

The least number which should be added to 4707 so that the sum is exactly divisible by 4, 5, 6 and 8 is:

A. 63

B. 73

C. 83

D. 93 ✓

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Q9 Mathematics

Due to 25 % reduction in the price of wheat per kg, John is able to buy 5 kg more for ₹600. What is the original price of wheat per kg?

A. ₹45

B. ₹40 ✓

C. ₹50

D. ₹60

Q10 Mathematics

The average weight of A, B, C and D is 56 kg. If the average weight of A, B and C is 52 kg and that of C and D is 48 kg, then the weight of C is:

A. 30 kg

B. 36 kg

C. 28 kg ✓

D. 34 kg

Q11 Mathematics

From an external point P, tangents PA and PB are drawn to a circle with centre O. If $\angle PAB = 55^\circ$, find $\angle AOB$.

A. 125°

B. 35°

C. 110° ✓

D. 100°

Q12 Mathematics

Ramesh Sharma borrows ₹8,000 for 3 years at 5% p.a. simple interest. He lends it to Manohar at 7 % p.a. for 3 years. Find his gain.

A. ₹580

B. ₹480 ✓

C. ₹450

D. ₹460

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Q13 Mathematics

Find the sum of the numbers between 400 and 600 such that when they are divided by 6, 12 and 16, there will be no remainder.

A. 2610

B. 2620

C. 2026

D. 2016 ✓

Q14 Mathematics

The smallest six-digit number which is completely divisible by 4, 8, 12 and 16 is:

A. 100032 ✓

B. 100700

C. 100800

D. 100900

Q15 Mathematics

The length of a rectangle is $\frac{3}{5}$ of the radius of a circle. The radius of a circle is equal to the side of a square whose area is 4900 m^2. What is the area of the rectangle if its breadth is 20 m.

A. 860 m^2

B. 840 m^2 ✓

C. 480 m^2

D. 880 m^2

Q16 Mathematics

The mean of a, b, c, d, e and f is 36. If the mean of b, d and f is 28, find the mean of a, c and e.

A. 30

B. 42

C. 44 ✓

D. 32

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Q17 Mathematics

Simplify.

$17 \times 8 - 6 + [(27 - 3) \div 6 - 4]$

A. 136

B. 130 ✓

C. 150

D. 142

Q18 Mathematics

If $\sqrt{2116 \times \sqrt{48 \div x}} = 92$, find the value of x.

A. 3 ✓

B. 12

C. 2

D. 6

Q19 Mathematics

If $\cos x = \frac{-1}{2}$ and $\pi < x < \frac{3\pi}{2}$, find the value of $4\tan^2 x - 3\operatorname{cosec}^2 x$.

A. 16

B. 8 ✓

C. 10

D. 12

Q20 Mathematics

If the length of side of a square is increased by 10%, what is the percentage increase in its area?

A. 10%

B. 20%

C. 21% ✓

D. 15%

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Q21 Mathematics

If $x^4 + x^{-4} = 1154$, then the value of $x + x^{-1}$ is:

A. 8

B. 6 ✓

C. 5

D. 12

Q22 Mathematics

A train covers 400 km at a uniform speed. If the speed had been 10 km/h more, it would have taken 2 h less for the same journey. Find the speed of the train.

A. 40 km/h ✓

B. 50 km/h

C. 55 km/h

D. 45 km/h

Q23 Mathematics

Find the least number of five digits, which is exactly divisible by 472.

A. 10472

B. 10384 ✓

C. 10284

D. 10184

Q24 Mathematics

If $6\,(\sec^2 59^\circ - \cot^2 31^\circ) + \frac{2}{3}\sin 90^\circ - 3\tan^2 56^\circ\, y \tan^2 34^\circ = \frac{y}{3}$, then the value of y is:

A. 1

B. 2 ✓

C. 3

D. 4

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Q25 Mathematics

Simplify.

$$\frac{6.25 + \frac{5}{7} \times 28 - 5}{\frac{3}{4} \times (15.8 - 3.4) + 5 \times 2.39}$$

A. 3

B. 1 ✓

C. 5

D. 4

Q26 Mathematics

Simplify.

$$\frac{46 + \frac{3}{4} \times 32 - 6}{37 - \frac{3}{4} \times (34 - 6)}$$

A. 6

B. 10

C. 4 ✓

D. 8

Q27 Mathematics

If the sum of squares of two positive numbers is 2437 and square root of one number is 7, find the other number.

A. 6 ✓

B. 16

C. 12

D. 8

Q28 Mathematics

If $a^2 + b^2 = 82$ and $ab = 9$, find the value of $a^3 + b^3$.

A. 750

B. 730 ✓

C. 720

D. 830

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Q29 Mathematics

$3^{71} + 3^{72} + 3^{73} + 3^{74} + 3^{75}$ is divisible by:

A. 5

B. 8

C. 11 ✓

D. 7

Q30 Mathematics

A is 5 times as good as workman as B and therefore is able to complete a job in 60 days less than B. In how many days will they finish it working together?

A. $14\frac{1}{2}$ days

B. $12\frac{1}{2}$ days ✓

C. 14 days

D. 12 days

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Q1 Mathematics

Solve the following.

$$\sqrt{37+\sqrt{130+2\sqrt{56-\sqrt{16}-\sqrt{9}}}}=?$$

A. 7 ✓

B. 229

C. 252

D. 200

Q2 Mathematics

How many numbers between 300 and 1000 are divisible by 7?

A. 994

B. 301

C. 100 ✓

D. 101

Q3 Mathematics

Zamir buys an article with off-season discount of 40% and sells at 25% discount on the marked price. Find his percentage profit/loss.

A. 15% profit

B. 25% loss

C. 15% loss

D. 25% profit ✓

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Q4 Mathematics

Express $0.03\overline{7}$ in the form of $\frac{p}{q}$, where p is a whole number and q is a natural number.

A. $\frac{37}{1000}$

B. $\frac{34}{99}$

C. $\frac{17}{45}$

D. $\frac{17}{450}$ ✓

Q5 Mathematics

The sum of the zeros of the polynomial

$5x^2 + (5p-1)x - (2p+5)$ is the same as one fourth of their product. Find the value of p.

A. 2

B. -2

C. $\frac{1}{2}$ ✓

D. $-\frac{1}{2}$

Q6 Mathematics

The LCM of two numbers is 91 times their HCF. The sum of the HCF and LCM is 2760. If one of the numbers is 210, the other number will be:

A. 30

B. 2730

C. 390 ✓

D. 420

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Q7 Mathematics

The length of a rectangle is 2 m less than thrice its breadth. If its perimeter is 28 m, find its breadth.

A. 4 m ✓

B. 7.5 m

C. 10 m

D. 6 m

Q8 Mathematics

The top of two towers of heights x and y standing on level ground, subtend angles of $60°$ and $30°$ respectively at the midpoint of the line joining their feet. The value of x : y is:

A. 2 : 1

B. 1 : 2

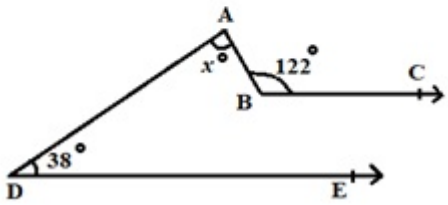
C. 1 : 3

D. 3 : 1 ✓

Q9 Mathematics

In the given figure, BC ∥ DE.

Find the value of x.



A. 84 ✓

B. 38

C. 142

D. 20

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Q10 Mathematics

A man and a woman can complete a task in 8 and 12 days respectively. In how many days will 2 men and 3 women be able to complete the task?

A. 5

B. 4

C. 3

D. 2 ✓

Q11 Mathematics

The difference between 82% and 73% of the same number is 72. What is 48% of that number?

A. 418

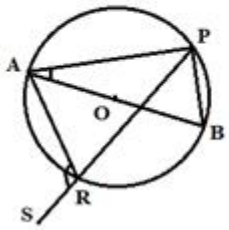
B. 360

C. $\frac{1440}{31}$

D. 384 ✓

Q12 Mathematics

In the figure, O is the centre of the circle. If $\angle ARS = 125°$, then find the measure of $\angle PAB$.



A. 145°

B. 35° ✓

C. 125°

D. 55°

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Q13 Mathematics

The mean of ages of 9 children in a joint family is 14 years. The ages of their grandfather and grandmother are 71 years and 67 years respectively. Find the mean of the ages of children and grandparents.

A. 51 years

B. 24 years ✓

C. 25 years

D. 16 years

Q14 Mathematics

What is the HCF of 52 and 100?

A. 48

B. 44

C. 4 ✓

D. 52

Q15 Mathematics

A wheel of a cycle makes 7000 revolutions in moving 11 km. What is the diameter of the wheel?

A. 10 cm

B. 25 cm

C. 50 cm ✓

D. 100 cm

Q16 Mathematics

The speed of a boat in still water is 14 km/h. It goes 28 km downstream in 1 h 45 min. Find the speed of the stream.

A. 16 km/h

B. 12 km/h

C. 7 km/h

D. 2 km/h ✓

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Q17 Mathematics

By selling an article for ₹1,360, a dealer loses 15%. At what price should he sell the article to gain 10%?

A. ₹1,360

B. ₹1,560

C. ₹1,760 ✓

D. ₹1,600

Q18 Mathematics

Twelve men can complete a task in 16 days. Thirty-two women can complete the same task in 12 days. Eight men and eight women together worked for 12 days, after which the women dropped and 8 men joined. In how many days the men will be able to complete the remaining task?

A. 3 days ✓

B. 9 days

C. 2 days

D. 10 days

Q19 Mathematics

Sum of four consecutive multiples of 3 is 78. The largest of these numbers is:

A. 18

B. 27

C. 21

D. 24 ✓

Q20 Mathematics

Zaved borrowed ₹10,000 for 2 years on compound interest, compounded annually and paid ₹12,544 at the end of 2 years. If he had borrowed the amount on simple interest, then how much money he would have saved?

A. ₹144 ✓

B. ₹12,400

C. ₹4,944

D. ₹2,400

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Q21 Mathematics

A box contains 6 white, 2 black and 3 red balls. If a ball is drawn at random, what is the probability that it will not be white?

A. $\frac{5}{6}$

B. $\frac{6}{5}$

C. $\frac{5}{11}$ ✓

D. $\frac{6}{11}$

Q22 Mathematics

Solve the following.

$\left\{1-\frac{1}{4}\right\}\left\{1-\frac{2}{4}\right\}\ldots\left\{1-\frac{5}{4}\right\}\left\{1-\frac{6}{4}\right\}=?$

A. $\frac{3}{256}$

B. $\frac{3}{64}$

C. $-\frac{3}{256}$

D. 0 ✓

Q23 Mathematics

Solve the following.

$5+3\times72\div24-12=?$

A. 113

B. 2 ✓

C. 12

D. –22

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Q24 Mathematics

Solve the following.

$3.03 + 31.003 + 13.33 + 3.331$

A. 3.597

B. 50.370

C. 35.97

D. 50.694 ✓

Q25 Mathematics

Grandfather of Sukhdev and Baldev divided an amount of ₹2,150 among them in the ratio 20 : 23. They both donated ₹100 each for charity out of their shares. What will be the new ratio of their respective amounts?

A. 120 : 123

B. 19 : 22

C. 80 : 77

D. 6 : 7 ✓

Q26 Mathematics

Solve the following.

$80 \div (16 \div 2) + \{[(6 \times 5) - 15 \times 2 + 4] - 12\}$

A. –17

B. –62

C. 2 ✓

D. 148

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Q27 Mathematics

If $\sqrt{3}\sin\theta - \cos\theta = 0$ (θ is an acute angle), then the value of

$\cos^3\theta - \sqrt{3}\sin^3\theta$ will be:

A. $\frac{\sqrt{3}}{4}$ ✓

B. $\frac{\sqrt{3}}{2}$

C. -1

D. $\frac{3}{8}$

Q28 Mathematics

If 140 g brass is mixed with copper to prepare an alloy having brass and copper in the ratio 4 : 3, then how much copper has been taken to prepare the alloy?

A. 105 g ✓

B. 245 g

C. 60 g

D. 80 g

Q29 Mathematics

Dalip Rai borrowed ₹24,000 from Amarjeet at simple interest of 9% per annum. Find the sum he will have to return after 3 years.

A. ₹4,800

B. ₹28,800

C. ₹30,480 ✓

D. ₹6,480

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Q30 Mathematics

Sum of the digits of a two-digit number is 6. If the digits are reversed, the new number equals double of the original number decreased by 6. Find the number.

A. 51

B. 42

C. 24 ✓

D. 15

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

In a 200 m race, Shruti runs at the speed of 4 km/h. Shruti gives a start of 18 m to Veena and still beats her by 30 s. What is Veena's speed?

A. 4.36 km/h

B. $\frac{24}{7}$ km/h

C. $\frac{7}{24}$ km/h

D. 3.12 km/h ✓

Q2 Mathematics

If $\sin\theta - \cos\theta = 0$, (angle in first quadrant) then the value of

$sin^3\theta + 3cos^3\theta$ is:

A. $\frac{1}{\sqrt{2}}$

B. 2

C. $\sqrt{2}$ ✓

D. $2\sqrt{2}$

Q3 Mathematics

The angles of elevation of the top of a tower from two points on the ground 18 m and 32 m away from the foot of the tower are complementary. The height of the tower is:

A. 20 m

B. 36 m

C. 24 m ✓

D. 32 m

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Q4 Mathematics

A pool has 3 taps. The first tap takes 4 days, the second tap takes 2 days and the third tap takes only 12 h to fill the pool. How long will it take to fill the pool using all the three taps?

A. $6\frac{1}{2}$ days

B. 6 days

C. $8\frac{8}{11}$ h ✓

D. $1\frac{1}{11}$ h

Q5 Mathematics

If the mode of the following data is 12, then find the value of k.

11, 15, 8, 9, k, 11, 12, 12, 15, 14

A. 12 ✓

B. 11

C. 13

D. 15

Q6 Mathematics

5 m long ladder is leaning against a wall and it reaches the wall at a point 3 m high. If the foot of the ladder is moved 2.6 m towards the wall then the distance by which the top of the ladder slides upwards on the wall is:

A. 1.8 m ✓

B. 4.8 m

C. 1.08 m

D. 5.6 m

Q7 Mathematics

The mean of 21 observations is 42. If out of 21 given observations, the mean of the first 11 observations is 50 and the mean of the last 11 observations is 35, then the 11^{th} observation will be:

A. 53 ✓

B. 40

C. 35

D. 50

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Q8 Mathematics

HCF of $2^4 \times 3^4 \times 5^3 \times 7^2$

and $2^2 \times 3^6 \times 5^5$ is:

A. $2^2 \times 3^2 \times 5^3 \times 7^2$

B. $2^3 \times 3^5 \times 5^4 \times 7$

C. $2^6 \times 3^{10} \times 5^8 \times 7^2$

D. $2^2 \times 3^4 \times 5^3$ ✓

Q9 Mathematics

A train started with 450 passengers. At the first stop, $\frac{1}{9}$ of them got down and 20 new passengers got in. At the second stop, $\frac{1}{6}$ of the passengers then existing got down and 19 new passengers boarded. With how many passengers did the train arrive at the third stop?

A. 420

B. 400

C. 369 ✓

D. 394

Q10 Mathematics

Simplify.

$$\frac{(542+321)^2-(542-321)^2}{542 \times 321}$$

A. 1

B. $\frac{1}{271}$

C. $\frac{642}{271}$

D. 4 ✓

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Q11 Mathematics

The sum of the digits of a two-digit number is 9. If the digits are reversed, the new number when increased by 9 equals three times the original number. Find the number.

A. 27 ✓

B. 72

C. 54

D. 45

Q12 Mathematics

By selling an article for ₹1,785, a dealer loses 15%. At what price should he sell the article to gain 15%?

A. ₹1,785

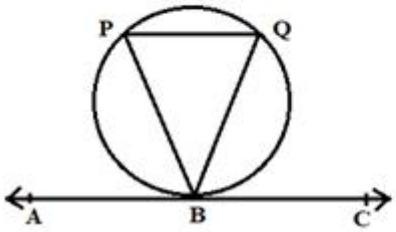
B. ₹2,100

C. ₹2,415 ✓

D. ₹2,205

Q13 Mathematics

Line ABC is a tangent to a circle at B. PQ ∥ AC and $\angle QBC = 70°$. ∠PBQ is =?



A. 20°

B. 70°

C. 40° ✓

D. 110°

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Q14 Mathematics

Simplify.

$1800 \div 10 \times \{45 \div (17-2)\} \times 2 + \{-2(1+2)\}$

A. 180

B. 1074 ✓

C. 114

D. 0

Q15 Mathematics

Simplify.

$0.83 + 44.4 + 4.44 + 4.604 + 43$

A. 97.274 ✓

B. 97.31

C. 178.67

D. 56.18

Q16 Mathematics

A sum becomes ₹26,400 after 2 years at simple interest of 5% per annum. Find the sum.

A. ₹2,400

B. ₹24,000 ✓

C. ₹2,640

D. ₹29,040

Q17 Mathematics

The radius of a spherical balloon increases from 5 cm to 10 cm when more air is pumped into it. The ratio of the surface area of the original balloon and that of the inflated balloon is:

A. 1 : 2

B. 1 : 4 ✓

C. 2 : 1

D. 1 : 8

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Q18 Mathematics

Home Decor shop marked every item 30% higher than the actual cost price. The owner offers 10% discount on the marked price of each item. If a Sofa set is sold for ₹23,400, how much profit did he earn?

A. ₹3,400 ✓

B. ₹3,978

C. ₹18,000

D. ₹20,000

Q19 Mathematics

The base of a right-angled triangle is 12 cm and the difference between the other two sides is 6 cm. What will be the perimeter of the triangle?

A. 36 cm ✓

B. 30 cm

C. 54 cm

D. 18 cm

Q20 Mathematics

Varun is three times as old as his sister. Six years hence the product of their ages will be 231. Find Varun's present age.

A. 13 years

B. 5 years

C. 39 years

D. 15 years ✓

Q21 Mathematics

An amount of ₹48,000 is divided between two brothers Anil and Aditya in the ratio 11 : 13. What is the share of Aditya?

A. ₹22,000

B. ₹24,000

C. ₹2,000

D. ₹26,000 ✓

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Q22 Mathematics

Rajpal borrowed a certain amount at 10% per annum simple interest for $1\frac{1}{2}$ years. He gave the same amount as loan to a friend and charged compound interest (compounded semi-annually) at the same rate for the same period. In this way he earned ₹305. Find the sum of the money.

A. ₹40,305

B. ₹40,000 ✓

C. ₹30,500

D. ₹30,000

Q23 Mathematics

A 1.5 kg cake is divided equally among 10 boys. How much cake will each boy get?

A. 1500 g

B. 150 g ✓

C. 10 g

D. 15 g

Q24 Mathematics

Simplify.

$12 \div (3 \times 2) + 8 \times 4 - 4$

A. 30 ✓

B. 2

C. 60

D. 1

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Q25 Mathematics

Simplify.

$$\sqrt{56+\sqrt{185+88\sqrt{\sqrt{36}+19}}}$$

A. $\sqrt{91}$

B. 81

C. 9 ✓

D. 3

Q26 Mathematics

The largest number which divides 55, 72 and 123 leaving the remainders 3, 7 and 6 respectively is:

A. 13 ✓

B. 117

C. 66

D. 26

Q27 Mathematics

If $(2x-1)$ is a factor of $2x^4-7x^3+x+k=0$, then find the value of 'k'.

A. $-\frac{5}{12}$

B. 0

C. $\frac{1}{4}$ ✓

D. $-\frac{1}{4}$

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Q28 Mathematics

Sixteen men can complete a work in 24 days. Twenty four women can complete the same work in 32 days. Sixteen men and sixteen women together worked for twelve days, after which women dropped. How many more men are to be taken to complete the remaining work in 2 days?

A. 32 ✓

B. 64

C. 24

D. 48

Q29 Mathematics

Two numbers A and B are less than a third number C by 15% and 32% respectively. By what percentage is number B less than number A?

A. 80

B. 20 ✓

C. 68

D. 32

Q30 Mathematics

Two numbers are in the ratio 3 : 2. If 8 is subtracted from the first number and 6 is subtracted from the second number, the ratio becomes 5 : 4. The numbers are:

A. 2, 3

B. 24, 16

C. 3, 2 ✓

D. 16, 24

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Simplify:

$8.8 + .08 + 8.88 + .808$

A. 2.656

B. 1.792

C. 185.68

D. 18.568 ✓

Q2 Mathematics

Select the option that gives the fractions $\frac{2}{5}, \frac{1}{3}, \frac{3}{5}, \frac{1}{4}, \frac{7}{10}, \frac{5}{8}$ in ascending order.

A. $\frac{1}{4}, \frac{1}{3}, \frac{2}{5}, \frac{3}{5}, \frac{5}{8}, \frac{7}{10}$ ✓

B. $\frac{1}{3}, \frac{1}{4}, \frac{2}{5}, \frac{3}{5}, \frac{5}{8}, \frac{7}{10}$

C. $\frac{7}{10}, \frac{5}{8}, \frac{3}{5}, \frac{2}{5}, \frac{1}{3}, \frac{1}{4}$

D. $\frac{1}{4}, \frac{1}{3}, \frac{3}{5}, \frac{2}{5}, \frac{5}{8}, \frac{7}{10}$

Q3 Mathematics

The smallest of the four consecutive odd numbers having sum 160 is:

A. 39

B. 37 ✓

C. 41

D. 35

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Q4 Mathematics

A dress material shopkeeper marked every item 25% higher than the actual cost price. He offers 12% discount on the marked price of each item. If a suit length is sold for ₹2,750, how much profit did the shopkeeper earn?

A. ₹250 ✓

B. ₹2,500

C. ₹2,738

D. ₹2,737

Q5 Mathematics

A motor boat, whose speed is 11 km/h in still water, goes 28 km downstream in 2 h 20 min. Find the speed of the stream.

A. 12 km/h

B. 1 km/h ✓

C. 11 km/h

D. 10 km/h

Q6 Mathematics

If $\sin\theta - \cos\theta = 0 (0 \leq \theta \leq 90°)$ then the value of $\sin^3\theta + \cos^3\theta$ is:

A. 0

B. 1

C. $4\sqrt{2}$

D. $\frac{1}{\sqrt{2}}$ ✓

Q7 Mathematics

The sum of all even integers from 2 to 281 is:

A. 19740 ✓

B. 19599

C. 19527

D. 19458

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Q8 Mathematics

If A, B and C are the interior angles of a Δ ABC, simplify:

$$\frac{\cos^2\left(\frac{B+C}{2}\right)+\cos^2\frac{A}{2}}{\sec^2\frac{C}{2}-\cot^2\left(\frac{A+B}{2}\right)}$$

A. 1 ✓

B. Not defined

C. 0

D. 2

Q9 Mathematics

Amrit borrowed some amount at 10% per annum on simple interest for 1 year. Avishek borrowed the same amount at the same rate on compound interest (compounded semiannually) for the same period. If Avishek paid ₹50 more than Amrit as interest, what amount did each of them borrow?

A. ₹19,950

B. ₹20,050

C. ₹20,000 ✓

D. ₹20,010

Q10 Mathematics

Suraj and Bimal started a business. They earned ₹8,400 as profit in a year. At the end of the year, Suraj got ₹4,500 as his share of profit. What is the ratio of the amounts invested by Suraj and Bimal for the business?

A. 15 : 28

B. 28 : 13

C. 13 : 15

D. 15 : 13 ✓

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Q11 Mathematics

A tank has 3 taps to fill water. The first tap takes 6 h, the second tap takes 1 day and the third tap takes 18 h to fill the tank. But there was a hole at the bottom, capable of emptying the completely filled tank in 18 h. The hole was detected after 1 h and was immediately fixed. How long will it take to fill the tank using all the three taps?

A. 4 h ✓

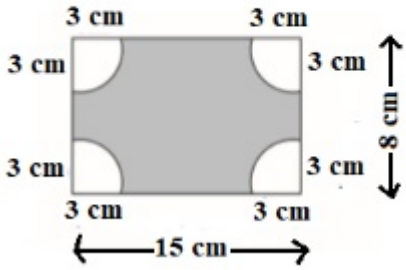
B. 3 h

C. $3\frac{15}{19}$ h

D. $4\frac{4}{5}$ h

Q12 Mathematics

Find the area of the shaded region.



A. $\frac{588}{7}$ cm^2

B. $\frac{12}{7}$ cm^2

C. $\frac{78}{7}$ cm^2

D. $\frac{642}{7}$ cm^2 ✓

Q13 Mathematics

5 m long ladder is leaning against a wall and it reaches the wall at a point 3 m high. By how much distance the ladder should be moved towards the wall so that its top reaches a point 4.8 m high.

A. 2.96 m

B. 2.2 m

C. 1.4 m

D. 2.6 m ✓

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Q14 Mathematics

Simplify:

$24 \times 3 - 5 \times \frac{1}{3}\{[-5(5-2)] \div 10\}$

A. 74.5 ✓

B. 31.5

C. 121.5

D. 69.5

Q15 Mathematics

If $(x^4 - 2x^3 + 3x^2 - x + k)$ is a multiple of $(x - 3)$ then value of k is:

A. 165

B. -51 ✓

C. 51

D. -165

Q16 Mathematics

LCM of $2^4 \times 3^4 \times 5^3$

and $2^2 \times 3^6 \times 5^5 \times 7^2$ is:

A. $2^4 \times 3^6 \times 5^5 \times 7^2$ ✓

B. $2^2 \times 3^2 \times 5^2 \times 7^2$

C. $2^6 \times 3^{10} \times 5^8 \times 7^2$

D. $2^3 \times 3^5 \times 5^4 \times 7$

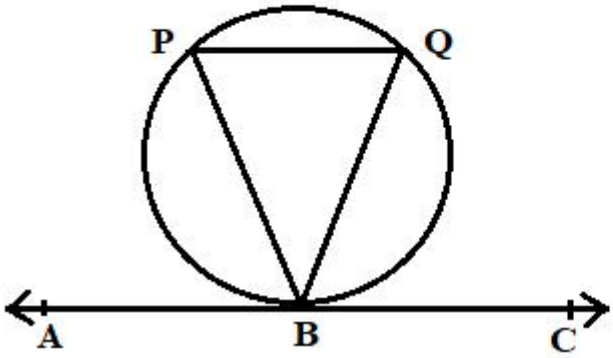
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Q17 Mathematics

Line ABC is a tangent to a circle at B. If BP = BQ and $\angle QBC = 72^\circ$ then $\angle PBQ$ is:



A. 36° ✓

B. 70°

C. 72°

D. 108°

Q18 Mathematics

The ages of Mahender and Zahid are in the ratio 6 : 7. Fifteen years ago their ages were in the ratio 9 : 11. Mahender's present age is:

A. 54 years

B. 60 years ✓

C. 10 years

D. 18 years

Q19 Mathematics

Simplify:

$72 \div 3 + 9 - 2 \times (3 - 2)$

A. 4

B. 31 ✓

C. 62

D. 7.2

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Q20 Mathematics

Every month Sunil saves $\frac{2}{17}$ of his monthly salary of ₹51,000. What amount does he save every month?

A. ₹1,020

B. ₹3,000

C. ₹5,100

D. ₹6,000 ✓

Q21 Mathematics

Sushil can complete a piece of work in 15 h and Bishan can complete the same work in 18 h. If they work together, how much time will they take to complete the work?

A. $8\frac{2}{11}$ h ✓

B. $8\frac{1}{4}$ h

C. $\frac{11}{90}$ h

D. $16\frac{1}{2}$ h

Q22 Mathematics

Length of the three sides of Δ ABC are 6 cm, 4 cm and 9 cm. Another Δ DEF with one side equal to 36 cm is similar to Δ ABC. What is the greatest possible perimeter of Δ DEF?

A. 76 cm

B. 171 cm ✓

C. 420 cm

D. 114 cm

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Q23 Mathematics

Simplify:

$$\sqrt{66+\sqrt{185+8\sqrt{\sqrt{36}+19}}}$$

A. 9 ✓

B. $\sqrt{91}$

C. 3

D. 81

Q24 Mathematics

The mean of the marks scored by 40 students is 68. Later on, it was found that a score of 25 was misread as 45. Find the correct mean.

A. 28

B. 15

C. 68.5

D. 67.5 ✓

Q25 Mathematics

If the mean of the following data is 11, find the value of 'k'.

11, 19, 5, 10, k, 13, 12, 8, 15, 14

A. 13

B. 3 ✓

C. 11

D. 12

Q26 Mathematics

Ananya and Babita have respectively 20% and 28% less money than their friend Kavita. By what percentage has Babita less money than Ananya?

A. 20

B. 90

C. 48

D. 10 ✓

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Q27 Mathematics

By selling 20 shirts a shopkeeper earns a profit equal to selling price of 5 shirts. Find his percentage profit.

A. 15%

B. 25% ✓

C. 20%

D. 5%

Q28 Mathematics

The sum of the digits of a two-digit number is 5. If the digits are reversed, the new number when increased by 1 equals three times the original number. Find the number.

A. 23

B. 14 ✓

C. 32

D. 41

Q29 Mathematics

The least number that is divisible by all the numbers from 2 to 10 is:

A. 100

B. 504

C. 2520 ✓

D. 9

Q30 Mathematics

Lalit gave a loan of ₹12000 to his friend Tarun at simple interest for 2 years and got ₹1200 as interest. Find the rate of interest per annum.

A. 500 % per annum

B. 5% per annum ✓

C. 10% per annum

D. $5\frac{5}{9}$% per annum

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A window in a building is at a height of 10 meters from the ground. The angle of depression of a point P on the ground from the window is 30°. The angle of elevation of the top of the building from the point P is 60°. What is the height of the building?

A. 30 meters ✓

B. 35 meters

C. 20 meters

D. 40 meters

Q2 Mathematics

The mean score of class A of 40 students in the mathematics test of 30 marks is 23. The mean score of class B of 45 students in the same test is 22. What is the ratio of the mean score of both the classes to that of class A?

A. 390 : 382

B. 380 : 391

C. 382 : 391 ✓

D. 391 : 382

Q3 Mathematics

PT is a tangent drawn from P, given outside the circle, with center O touching the circle at Q. If PQ = 30 cm and the diameter of the circle is 32cm, then what is the length of OP?

A. 34 cm ✓

B. 32 cm

C. 38 cm

D. 36 cm

Q4 Mathematics

A solid metallic cylinder of base radius 3 cm and height 5 cm is melted to form cones each of height 1 cm and base radius 1 mm. How many cones were formed?

A. 12,500 cones

B. 19,500 cones

C. 13,500 cones ✓

D. 10,500 cones

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Q5 Mathematics

If $\frac{x}{2y} = \frac{6}{7}$, then what is the value of $\frac{x-y}{x+y} + \frac{14}{19}$?

A. $\frac{19}{19}$ ✓

B. $\frac{110}{99}$

C. $\frac{99}{109}$

D. $\frac{109}{19}$

Q6 Mathematics

How many times is digit 3 passed in counting from 301 to 399?

A. 119 ✓

B. 11

C. 121

D. 21

Q7 Mathematics

a, b and c are the sides of a right triangle with c as hypotenuse. The radius r, of the circle which touches the three sides of the triangle is :

A. $r = \frac{(a - b + c)}{2}$

B. $r = \frac{(a - b - c)}{2}$

C. $r = \frac{(a + b - c)}{2}$ ✓

D. $r = \frac{(a + b + c)}{2}$

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Q8 Mathematics

3 men and 3 boys can do a piece of work in 10 days. When one man is replaced by a boy, the work is completed in 12 days. In how many days will 2 men and 2 boys complete the work?

A. 25 days

B. 15 days ✓

C. 22 days

D. 20 days

Q9 Mathematics

If $a = 17, b = 15, c = \frac{1}{4}$ of -128, then what is the value of

$a^3 + b^3 + c^3 - 3abc$?

A. 1

B. 3

C. 0 ✓

D. 2

Q10 Mathematics

In a competitive examination 1 mark is awarded for a correct answer, 0 marks for an unattempt question and $\frac{1}{2}$ mark is deducted for every wrong answer. Ambika answered 120 questions and got 90 marks. How many answers were correct?

A. 110

B. 98

C. 60

D. 100 ✓

Q11 Mathematics

If $x = 2 - \sqrt{3}$, then $x - \frac{1}{x}$ is:

A. $12 - 30\sqrt{3}$

B. $3\sqrt{3}$

C. $-2\sqrt{3}$ ✓

D. $5\sqrt{3}$

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Q12 Mathematics

If $(a + b) : (b + c) : (c + a)$ is $6 : 7 : 8$ and also $a + b + c = 14$, then what is the value of c?

A. 8

B. 10

C. 12

D. 6 ✓

Q13 Mathematics

If $\frac{1}{5}$ of a number multiplied by $\frac{2}{3}$ of the same number gives 480, then the number is:

A. 60 ✓

B. 100

C. 70

D. 80

Q14 Mathematics

The base BC of a triangle ABC is divided at D such that BD = half of DC. The area of triangle ABC is _____ times the area of triangle ADC.

A. three

B. $\frac{3}{2}$ ✓

C. four

D. two

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Q15 Mathematics

Simplify

$$\frac{1}{1.2.3}+\frac{1}{2.3.4}+\frac{1}{3.4.5}+\frac{1}{4.5.6}$$

A. $\frac{2}{60}$

B. $\frac{7}{30}$ ✓

C. $\frac{19}{30}$

D. $\frac{5}{30}$

Q16 Mathematics

A and B borrowed the same amount for the same period. A borrowed on simple interest at the rate of 8% yearly. B borrowed on compound interest of 5% half yearly. At the end of one year the ratio of B's interest to that of A's interest is:

A. 40 : 41

B. 41 : 32 ✓

C. 4 : 3

D. 32 : 41

Q17 Mathematics

Three traffic signals change at intervals of 48, 72 and 108 seconds respectively. They start changing simultaneously at 8:20:00 hours for the first time. At what time will they change again simultaneously?

A. 8:25:00 hours

B. 8:40:00 hours

C. 8:30:00 hours

D. 8:27:12 hours ✓

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Q18 Mathematics

If $\cot A = \frac{1}{\sqrt{3}}$, then what is the value of $\frac{(1-\cos 2A)}{(1+\cos 2A)}$?

A. 1.5

B. $\sqrt{3}$

C. $\frac{1}{3}$

D. 3 ✓

Q19 Mathematics

Two trains starting at the same time in opposite directions from two stations 200 km apart meet each other at a distance of 110 km from one of the stations. What is the ratio of their speed?

A. 11 : 9 ✓

B. 13 : 7

C. 10 : 9

D. 12 : 8

Q20 Mathematics

₹9,000 is divided equally among a certain number of students. Had there been 20 more students each would have got ₹160 less. What was the original number of students?

A. 35

B. 25 ✓

C. 20

D. 30

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Q21 Mathematics

A shopkeeper purchased a machine for ₹70,000 and spent ₹5,000 as overhead expenditure. Had he purchased the machine at 15% less, he would have earned a profit of 15%. What is the selling price of the machine?

A. ₹74,175 ✓

B. ₹75,000

C. ₹78,175

D. ₹74,000

Q22 Mathematics

In a class 82% students passed and 2% students were placed in the reappear category. The number of students who failed was 592. What was the total number of students in the class?

A. 2700

B. 2000

C. 3700 ✓

D. 3600

Q23 Mathematics

A, B and C entered into partnership. A invested 3 times as much as B and B invested $\frac{2}{3}$ times of what C invested. At the end of the year the total profit was ₹6,600. B's share in the profit is:

A. ₹1,200 ✓

B. ₹1,600

C. ₹2,400

D. ₹1,800

Q24 Mathematics

Rahim purchased 20 kg of oranges at the rate of ₹45/kg and sold them at the rate of ₹54/kg. During this period 1.5 kg oranges got spoiled. He sold the spoiled oranges at the rate of ₹10/kg. His net gain or loss percent is:

A. $13\frac{2}{3}$ % loss

B. $12\frac{2}{3}$ % gain ✓

C. 14% loss

D. 14% gain

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Q25 Mathematics

A student reaches school on his bicycle in 3/2 hours at a speed of 8km/h. On the return journey he rests for half an hour and takes a route which is 1 km shorter. What should be the percentage increase in the speed of his bicycle so that he reaches home in the same time?

A. 30.5%

B. 37.5% ✓

C. 35%

D. 37%

Q26 Mathematics

A water tank is made of an aluminum sheet 3cm thick. The tank is open at the top. Its external dimensions are 1.36 m, 1.06 m and height 8.3m. What is the cost of painting the inner surface of the tank at 50 paise per 100 sq. cm?

A. ₹240

B. ₹249

C. ₹149

D. ₹219

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q27 Mathematics

20% of the toys produced in a factory were defective and 25% of the remaining were damaged. If 4800 toys were in good condition, then what was the original number of toys produced?

A. 8000 ✓

B. 6000

C. 10000

D. 9000

Q28 Mathematics

Simplify

$$0.3 \div \left(0.6 \times \frac{2}{3}\right) \times 0.2 \left(0.2 \times 2 \div \frac{1}{2} + 0.2\right)$$

A. 0.05

B. 1.5

C. 0.02

D. 0.15 ✓

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Q29 Mathematics

$(1 - \frac{1}{n}) + (1 - \frac{2}{n}) + (1 - \frac{3}{n}) +$ up to n terms will result as:

A. $\frac{n-1}{2}$ ✓

B. $\frac{1}{2n-1}$

C. $\frac{1}{2n}$

D. $\frac{1}{n^2}$

Q30 Mathematics

A rectangular field is 16 meters long and 12 meters wide. A barbed fence has to be drawn on three sides of the field leaving one side open along the width. What is the cost of fencing at the rate of 25 paise per cm?

A. ₹1,600

B. ₹1,900

C. ₹1,100 ✓

D. ₹4,400

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The speeds of A and B are in the ratio of 4 : 5 to cover a certain distance. If A takes 20 minutes more than B to reach the destination, then find the time taken by A to reach the destination.

A. 2 hours

B. $\frac{3}{2}$ hours

C. $\frac{4}{3}$ hours

D. $\frac{5}{3}$ hours ✓

Q2 Mathematics

If 70 is subtracted from two-third of a number, then the result is equal to the sum of 30 and one-fourth of that number. Find the number.

A. 230

B. 240 ✓

C. 340

D. 200

Q3 Mathematics

How long will it take a sum of money invested at 6% p.a. on simple interest to increase its value by 50%?

A. 8 years

B. $8\frac{1}{3}$ years ✓

C. 3 years

D. $3\frac{1}{8}$ years

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Q4 Mathematics

Find the missing value of p for the following distribution, whose mean is 12.58.

x:	5	8	10	12	p	20	25
f:	2	5	8	22	7	4	2

A. 10

B. 15 ✓

C. 20

D. 13

Q5 Mathematics

Find the value of $\frac{1}{4} + \frac{1}{4\times5} + \frac{1}{4\times5\times6}$ (rounded up to 2 decimals)

A. 0.31 ✓

B. 0.38

C. 0.21

D. 0.33

Q6 Mathematics

If $16 \cot A = 12$, then find the value of $\frac{\sin A + \cos A}{\sin A - \cos A}$.

A. 5

B. 8

C. 7 ✓

D. 6

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Q7 Mathematics

If α and β are the zeros of the polynomial

$f(x) = x^2 - 5x + k$

such that $\alpha - \beta = 1$, then find the value of k.

A. 5

B. 6 ✓

C. 3

D. 4

Q8 Mathematics

Find the H.C.F of $\frac{2}{3}, \frac{4}{9}, \frac{8}{15}$ and $\frac{10}{21}$.

A. $\frac{4}{315}$

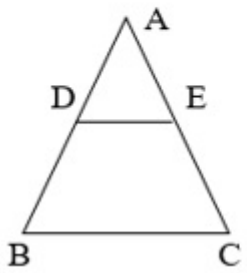
B. $\frac{315}{2}$

C. $\frac{2}{315}$ ✓

D. $\frac{315}{4}$

Q9 Mathematics

In a given ΔABC, $DE \| BC$ and $\frac{AD}{DB} = \frac{3}{5}$. If $AC = 5.6$ cm, then find AE.



A. 2.1 cm ✓

B. 4 cm

C. 3.2 cm

D. 1.8 cm

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Q10 Mathematics

If a student multiplied a number by $\frac{3}{4}$ instead of $\frac{4}{3}$, then find the percentage of error in that calculation (approximate).

A. 53%

B. 48%

C. 73%

D. 44% ✓

Q11 Mathematics

If $x = r \sin A \cos C$, $y = r \sin A \sin C$ and $z = r \cos A$, then find the value of $x^2 + y^2 + z^2$

A. 0

B. $2r^2$

C. r^2 ✓

D. $2r$

Q12 Mathematics

Mahesh sold $\frac{3}{4}$ of his stock at a gain of 20% and the remaining stock at a gain of 15%. Find the total gain percentage (approximate).

A. 17%

B. 19% ✓

C. 20%

D. 15%

Q13 Mathematics

If $\frac{154}{0.154} = \frac{15.4}{x}$, then find the value of x.

A. 0.0154 ✓

B. 15.4

C. 154

D. 1.54

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Q14 Mathematics

A bus covers a distance of 5 km in 20 min. If its speed is decreased by 3 km/hr, then find the time taken by the bus to cover the same distance.

A. 15 min

B. 20 min

C. 30 min

D. 25 min ✓

Q15 Mathematics

Rajesh can finish a task in 4 days while Mahesh can finish the same task in 3 days. If both of them finish the task together and get paid ₹350 in total, then find the share of Rajesh.

A. ₹200

B. ₹100

C. ₹140

D. ₹150 ✓

Q16 Mathematics

If $a = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $b = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, then find the value of $a^2 + b^2 - 4$.

A. 12

B. 14

C. 11

D. 10 ✓

Q17 Mathematics

Calculate the least whole number, which when subtracted from both the terms of the ratio 5 : 6 gives a ratio less than 17 : 22.

A. 5

B. 3

C. 4

D. 2 ✓

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Q18 Mathematics

Find the smallest number by which 720 should be multiplied so that the product becomes a perfect square.

A. 5 ✓

B. 6

C. 4

D. 3

Q19 Mathematics

The dimensions of a metallic cuboid are 50 cm × 40 cm × 32 cm. This cuboid is melted and recast into a cube. Find the surface area of the cube.

A. 8,350 cm^2

B. 7,150 cm^2

C. 8,700 cm^2

D. 9,600 cm^2 ✓

Q20 Mathematics

Find the mean of the following distribution.

x:	5	6	7	8	9
f:	4	8	14	11	3

A. 5.225

B. 9.125

C. 7.025 ✓

D. 8.325

Q21 Mathematics

Find the value of k such that the equations $2x + 3y + 11 = 0$ and $6x + ky + 33 = 0$ represent coincident lines.

A. 9 ✓

B. 5

C. 12

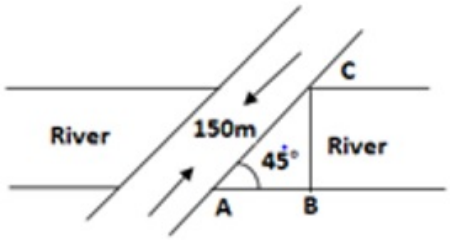
D. 6

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Q22 Mathematics

A bridge built across a river makes an angle of 45° with the river bank as shown in given figure. If the length of the bridge is 150 m, then what is the width of the river?



A. 70 m

B. $63\sqrt{2}$ m

C. $75\sqrt{2}$ m ✓

D. 65 m

Q23 Mathematics

A number when divided by 5 leaves a remainder 3. When the square of the same number is divided by 5, then the remainder is:

A. 5

B. 3

C. 2

D. 4 ✓

Q24 Mathematics

A company offers 5% discount on cash purchases. How much would Darshan pay, in cash, for a bike purchased from the company, if the marked price is ₹75,200?

A. ₹74,000

B. ₹71,440 ✓

C. ₹72,540

D. ₹70,450

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Q25 Mathematics

Calculate the least number that is exactly divisible by 12, 16, 24 and 32.

A. 102

B. 84

C. 96 ✓

D. 90

Q26 Mathematics

If the sum of two numbers is 17 and the sum of their squares is 145, then find the numbers.

A. 10 and 7

B. 8 and 9 ✓

C. 5 and 12

D. 11 and 6

Q27 Mathematics

If 370 students appeared for an examination, of which 352 passed, then find the pass percentage (approximate).

A. 97%

B. 90%

C. 86%

D. 95% ✓

Q28 Mathematics

Calculate the compound interest on a sum of ₹12,000 at 16% p.a. for 3 months, compounded quarterly.

A. ₹1200

B. ₹480 ✓

C. ₹500

D. ₹400

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Q29 Mathematics

From given options the number that will completely divide $(3^{61}+3^{62}+3^{63}+3^{64})$ is :

A. 25

B. 16

C. 30 ✓

D. 11

Q30 Mathematics

Find the volume of the largest sphere that can be carved out of a cube of side 21 cm.

A. 8514 cm^3

B. 4158 cm^3

C. 4851 cm^3 ✓

D. 5841 cm^3

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Simplify:

$1.1 + 1.001 + 10.01 + 11.11$

A. 23.221 ✓

B. 23.14

C. 4.213

D. 3.124

Q2 Mathematics

The mean of ages of a group of 35 school students is 16 years. A 52 year old teacher joined the group. Find the mean of the ages of the students and the teacher.

A. 36 years

B. 34 years

C. 43.5 years

D. 17 years ✓

Q3 Mathematics

If $\sin\theta - \sqrt{3}\cos\theta = 0$ (θ is an acute angle), then the value of

$\sin^2\theta - \cos^2\theta$ is:

A. 1

B. $-\frac{1}{2}$

C. $\frac{1}{2}$ ✓

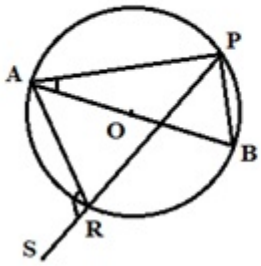
D. $\frac{\sqrt{3}-1}{2}$

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Q4 Mathematics

In the given figure O is the centre of the circle. If $\angle PAB = 35°$, then find $\angle ARS$.



A. 125° ✓

B. 55°

C. 65°

D. 115°

Q5 Mathematics

Simplify:

$5 + [7^2 - 6 \times 4\,(12 \div 6)] + 7 \times (5 - 3)$

A. 363

B. 20 ✓

C. -2

D. 19

Q6 Mathematics

A10 feet long ladder leaning against a wall, reaches the wall at a point 8 feet high. By how much distance should the ladder be moved towards the wall so that its top reaches a point at 9.6 feet high?

A. 2.8 ft

B. 3.2 ft ✓

C. 4.4 ft

D. 3.92 ft

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Q7 Mathematics

Simplify:

$$\sqrt{51+\sqrt{134+5\sqrt{42+\sqrt{16}+\sqrt{9}}}}$$

A. 197

B. 520

C. 64

D. 8 ✓

Q8 Mathematics

What is the LCM of 14, 21 and 28?

A. 48

B. 7

C. 84 ✓

D. 588

Q9 Mathematics

A swimmer, whose speed is 9 km/h in still water, goes 9 km downstream in 45 minutes. Find the speed of the stream.

A. 9 km/h

B. 3 km/h ✓

C. 12 km/h

D. 6 km/h

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Q10 Mathematics

Simplify:

$$\left(1-\frac{1}{2}\right)\left(1-\frac{1}{3}\right).....\left(1-\frac{1}{9}\right)\left(1-\frac{1}{10}\right)$$

A. $-\frac{1}{10}$

B. $\frac{5}{6}$

C. 0

D. $\frac{1}{10}$ ✓

Q11 Mathematics

The sum of the digits of a two-digit number is 12. If the digits are reversed, seven times the new number equals to four times the original number. Find the number.

A. 75

B. 48

C. 57

D. 84 ✓

Q12 Mathematics

Anita and Vineeta divide an amount of ₹1,950 between themselves in the ratio 6 : 7. If an amount of ₹100 is added to each of their shares, what will be the new ratio of their shares?

A. 20 : 23 ✓

B. 106 : 107

C. 600 : 700

D. 900 : 1050

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Q13 Mathematics

Anil buys an article with 20% discount on the marked price and sells it at 8% discount on the marked price. Find his profit/loss percent.

A. 12% loss

B. 12% profit

C. 15% profit ✓

D. 15% loss

Q14 Mathematics

Ram Sagar and Bhagat Ram enter into a partnership by investing in the ratio 10 : 13. Find Bhagat Ram's share in a profit of ₹8,050.

A. ₹4,550 ✓

B. ₹1550

C. ₹4,025

D. ₹3,500

Q15 Mathematics

How many numbers between 100 and 1000 are completely divisible by 11?

A. 82

B. 79

C. 81 ✓

D. 80

Q16 Mathematics

By selling an article for ₹2,340, the dealer loses 10%. At what price should he sell the article to gain 15%?

A. ₹2,990 ✓

B. ₹2,350

C. ₹2,365

D. ₹2,600

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Q17 Mathematics

A hollow metallic sphere has internal and external radius of 3 cm and 5 cm respectively. It is melted and recast as a solid cylinder with radius 7 cm. What is the height of the cylinder?

A. 8 cm

B. $\frac{2}{3}$ cm

C. 3 cm

D. $\frac{8}{3}$ cm ✓

Q18 Mathematics

यदि बहुपद $x^2 + 9x + 3k$ के शून्यकों के वर्गों का योग (sum of squares of zeroes) 21 है, तो k का मान ज्ञात कीजिए।

A. 30

B. 20

C. -17

D. 10 ✓

Q19 Mathematics

16 men can complete a work in 12 days. 12 women can complete the same work in 32 days. 16 men and 16 women together worked for 4 days, after which the women dropped out and 16 more men joined. In how many days will the men be able to complete the remaining work?

A. 2 days

B. 3 days ✓

C. 4 days

D. 5 days

Q20 Mathematics

Simplify:

$5 \times 42 - 3 + 27 \div 3$

A. 216 ✓

B. 204

C. 218

D. 110

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Q21 Mathematics

Kumud borrowed some amount at simple interest of 10% per annum for $1\frac{1}{2}$ year. Sneha borrowed the same amount at the same rate on compound interest (compounded semiannually) for the same period. If Sneha paid ₹61 more than Kumud as interest, then how much money did each of them borrow?

A. $₹\frac{61}{80}$

B. $₹\frac{1261}{80}$

C. ₹4,000

D. ₹8,000 ✓

Q22 Mathematics

Mohan borrowed an amount of ₹18,000 and paid a simple interest of ₹2,700 at 10% per annum. Find the duration for which he kept the borrowed amount.

A. $\frac{3}{2}$ years ✓

B. $\frac{2}{3}$ years

C. $\frac{3}{20}$ years

D. 3 years

Q23 Mathematics

The LCM of two numbers is 24 times their HCF. The sum of the HCF and LCM is 750. If one of the numbers is 90, then find the other number.

A. 240 ✓

B. 25

C. 720

D. 30

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Q24 Mathematics

A 15m high tree is broken by the wind in such a way that its top touches the ground and makes an angle of 60° with the ground. At what height from the bottom is the tree broken?

A. $\frac{15}{1+\sqrt{3}}$ m

B. $\frac{30\sqrt{3}}{2+\sqrt{3}}$ m

C. 5 m

D. $\frac{15\sqrt{3}}{2+\sqrt{3}}$ m ✓

Q25 Mathematics

If the sum of five consecutive numbers is 90, then what is the middle number?

A. 16

B. 19

C. 18 ✓

D. 17

Q26 Mathematics

Aryan takes twice as much time as Vipin to finish a piece of work. Together they finish the same piece of work in 2 days. In how much time can Vipin do the same work?

A. 2 days

B. 3 days ✓

C. 4 days

D. 6 days

Q27 Mathematics

The median of 11, 13, 10, 9, 8, 20, 13 is:

A. 13

B. 9

C. 11 ✓

D. 12

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Q28 Mathematics

The length of a hall is 7 m more than its breadth. If its perimeter is 62 m, find the length of the hall.

A. 34.5 m

B. 12 m

C. 19 m ✓

D. 27.5 m

Q29 Mathematics

The conversion of $0.0\overline{37}$ in the form $\frac{p}{q}$ is:

A. $\frac{37}{999}$

B. $\frac{37}{990}$ ✓

C. $\frac{37}{1000}$

D. $\frac{37}{100}$

Q30 Mathematics

In an examination Mohit got 30% of the maximum marks but failed by 25 marks. Another student who scored 38% got 15 marks more than the pass marks. The necessary pass percentage required is:

A. 53%

B. 50%

C. 35% ✓

D. 34%

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

In a reunion of class XII, out of 45 students, 30 students participated in the function. If all present in the function shake hands with one other, find the total number of handshakes.

A. 435 ✓

B. 870

C. 841

D. 900

Q2 Mathematics

Given that $\Delta ABC \sim \Delta DEF$, if BC = 12.5 cm and EF = 10 cm, then the areas of ΔABC and ΔDEF are in the ratio of:

A. 3 : 4

B. 16 : 25

C. 25 : 16 ✓

D. 1 : 2

Q3 Mathematics

LCM and HCF of two numbers are 1920 and 16 respectively. If one of the numbers is 240, then find the other number.

A. 128 ✓

B. 150

C. 182

D. 112

Q4 Mathematics

If α and β are the zeroes of the polynomial $x^2 - 5x + m$ such that $\alpha - \beta = 1$, then what will be the value of m.

A. 3

B. 2

C. 6 ✓

D. 10

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Q5 Mathematics

In ΔABC, $\angle BAC = 60°$, and O is a point inside ΔABC. If $\angle OBC$ is two times $\angle OBA$ and $\angle OCB$ is two times $\angle OCA$, then what will be the measure of $\angle BOC$?

A. $60°$

B. $120°$

C. $80°$

D. $100°$ ✓

Q6 Mathematics

A can complete 25% of a task in 10 days. B can complete 40% of the task in 40 days and C can complete $\frac{1}{3}$ of the task in 13 days. Who among them has the fastest speed to complete the same task?

A. All have the same speed

B. C ✓

C. A

D. B

Q7 Mathematics

If we increase 50% of the numerator and 80% of the denominator of a fraction, then what fraction of the original will be the new fraction?

A. $\frac{7}{9}$

B. $\frac{6}{5}$

C. $\frac{5}{6}$ ✓

D. $\frac{5}{8}$

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Q8 Mathematics

What is the value of the following expression?

$(243)^2 \div (27)^2 \times 6 \div 18$

A. 81

B. 27 ✓

C. 162

D. 1

Q9 Mathematics

The perimeter of a rhombus is 120 m and the distance between any two parallel sides is 15 m. The area of the rhombus is:

A. $450\ m^2$ ✓

B. $4.5\ m^2$

C. $45\ m^2$

D. $450\ cm^2$

Q10 Mathematics

If $16\sec^2\theta - 40\sec\theta + 25 = 0$ and θ is an acute angle, then what will be the value of $\tan\theta$?

A. $\frac{3}{4}$ ✓

B. $\frac{4}{5}$

C. $\frac{3}{5}$

D. $\frac{4}{3}$

Q11 Mathematics

The number between 6000 and 7000 that is divisible by each of 12, 21, 32 and 18 is:

A. 6064

B. 6048 ✓

C. 6480

D. 6040

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Q12 Mathematics

PQ is the diameter of a circle whose centre is O. if a point R lies on the circle and ∠RPO is 39°, then what will be the measure of ∠RQP?

A. 51° ✓

B. 125°

C. 129°

D. 151°

Q13 Mathematics

Rohan can travel from Delhi to Kanyakumari in 30 h. If he reduces his speed by $\frac{1}{15}$ th , he will go 10 km less in the same time. His speed is:

A. 2.5 km/h

B. 8 km/h

C. 5 km/h ✓

D. 3 km/h

Q14 Mathematics

What is the value of the following expression?

$(-20)^3 + (13)^3 + (7)^3$

A. 4566

B. –5460 ✓

C. 4560

D. –4650

Q15 Mathematics

A shopkeeper gives 20% discount on MRP. Joginder buys a suitcase from the shop, at an additional discount of 20% on the reduced price. If the MRP of the suitcase is ₹1,200, then find the purchasing price paid by Joginder.

A. ₹600

B. ₹864

C. ₹768 ✓

D. ₹800

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Q16 Mathematics

If (2, 7), (5, 1), (x, 3) are the vertices of a triangle whose area is 18 (sq. units), then find the possible value of x.

A. –7 or –1

B. 7 or – 1

C. 7 or 1 ✓

D. –7 or 1

Q17 Mathematics

If the radii of two circles are 4.5 cm and 3.5 cm and the length of the transverse common tangent is 6 cm, then the distance between the two centers will be:

A. 8 cm

B. 10 cm ✓

C. 12 cm

D. 9 cm

Q18 Mathematics

The present ages of Maya and Meera are in the ratio of 6 : 5 and after fifteen years the ratio will be 9 : 8. Meera's age is:

A. 30 years

B. 25 years ✓

C. 20 years

D. 35 years

Q19 Mathematics

If $19\frac{2}{3} - 7\frac{1}{4} = x + 2\frac{1}{2}$, then what will be the value of x ?

A. $9\frac{11}{12}$ ✓

B. $9\frac{1}{12}$

C. $\frac{11}{12}$

D. $11\frac{9}{12}$

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Q20 Mathematics

A sum of money doubles itself at a compound interest in 8 years. In how many years will it become four times itself?

A. 14

B. 20

C. 12

D. 16 ✓

Q21 Mathematics

The least positive number, which must be added to the greatest number of 4 digits in order that the sum may be exactly divisible by 307, is:

A. 176

B. 132 ✓

C. 131

D. 175

Q22 Mathematics

If $\text{Sin}(A + B) = \frac{\sqrt{3}}{2}$ and $\cos(A - B) = \frac{\sqrt{3}}{2}$, then which of the following will be possible values of A and B?

A. $A = 10°, B = 45°$

B. $A = 50°, B = 10°$

C. $A = 45°, B = 30°$

D. $A = 45°, B = 15°$ ✓

Q23 Mathematics

The digit of hundred's place value of 19! is:

A. 1

B. 4

C. 9

D. 0 ✓

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Q24 Mathematics

Find the smallest positive number which must be subtracted from the number 5970 for the difference to be a perfect square

A. 16

B. 25

C. 41 ✓

D. 9

Q25 Mathematics

If the average age of A, B and C is 22 years and the average age of B and C is 25 years, then find A's age after 9 years.

A. 35 years

B. 25 years ✓

C. 45 years

D. 50 years

Q26 Mathematics

In an examination, 35% students failed in one subject and 42% failed in the other subject, among these 30% failed in both the subjects. If total number of students is 2500 then how many students passed only in one subject?

A. 750

B. 425 ✓

C. 1050

D. 1750

Q27 Mathematics

The cost price of a car was ₹150000. Raju sold it to Montoo at a profit of 5%, and later Montoo sold it back to Raju at 2% loss. Find The total profit or loss in the entire transaction.

A. Raju's gain ₹3,150 ✓

B. Raju's gain ₹4,500

C. Raju's loss ₹4,350

D. Raju's gain ₹4,350

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Q28 Mathematics

If $(3x + 2y) : (3x - 2y) = 5 : 3$ then find $x : y$.

A. $\frac{8}{3}$ ✓

B. $\frac{4}{3}$

C. $\frac{16}{3}$

D. $\frac{32}{3}$

Q29 Mathematics

What is the value of the following expression?

$394 \times 394 + 2 \times 394 \times 106 + 106 \times 106$

A. 25000

B. 250000 ✓

C. 2500

D. 500

Q30 Mathematics

10.53 divided by 0.09 gives:

A. 117 ✓

B. 109

C. 1.019

D. 100.9

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Rohan can travel from Delhi to Kanyakumari in 30 h. If he reduces his speed by $\frac{1}{15}$th, he goes 10 km less in the same time. Find the speed.

A. 2.5 km/h

B. 3 km/h

C. 8 km/h

D. 5 km/h ✓

Q2 Mathematics

Solve the following.

$3[35 + (45 + 10 \div 2 \times 3 - 50) + 5]$

A. 50

B. 125

C. 123

D. 150 ✓

Q3 Mathematics

Find the sum of the face values of 6 and 5 in 61827354.

A. 30

B. 60000300

C. 40

D. 11 ✓

Q4 Mathematics

If x is less than y by 40%, then y exceeds x by:

A. $66\frac{2}{3}\%$ ✓

B. $66\frac{1}{3}\%$

C. 60%

D. $33\frac{1}{3}\%$

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Q5 Mathematics

PQ is a diameter of a circle whose centre is O. If a point R lies on the circle and ∠RPO is 39°, then find the measure of ∠RQP.

A. $51°$ ✓

B. $125°$

C. $151°$

D. $129°$

Q6 Mathematics

In ΔPQR, QR is extended up to S, so that RS = RP. If $\angle RPQ = 55°$ and $\angle PRS = 110°$, then find the measure of ∠PQS.

A. $15°$

B. $75°$

C. $55°$ ✓

D. $65°$

Q7 Mathematics

There are four table clocks. They ring every 10 min, 15 min, 20 min and 25 min respectively. If they all ring together at 10 a.m., then at what time will they ring together again?

A. 3:00 p.m. ✓

B. 3:30 p.m.

C. 10:00 p.m.

D. 12:00 a.m.

Q8 Mathematics

How much percentage above the cost price should a shopkeeper mark his goods so that after allowing a discount 25% he should gain 12%?

A. $33\frac{1}{3}\%$

B. 25%

C. 40%

D. $49\frac{1}{3}\%$ ✓

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Q9 Mathematics

If $\cos(x+y) = \frac{1}{2}$ and $\sin(x-y) = 0$, where x and y are positive acute angles and $x \geq y$, then x and y are:

A. 60° and 60°

B. 80° and 80°

C. 30° and 30° ✓

D. 45° and 45°

Q10 Mathematics

If the ratio of the 11^{th} term of an AP to its 18^{th} term is 2 : 3, find the ratio of the sum of its first five terms to the sum of its first 10 terms.

A. 6 : 17 ✓

B. 17 : 6

C. 1 : 2

D. 5 : 4

Q11 Mathematics

A sum of ₹800 becomes ₹920 in 3 years at simple interest. If interest is increased by 4%, then the amount will increase to:

A. ₹999

B. ₹1,016 ✓

C. ₹216

D. ₹1,050

Q12 Mathematics

The following observations are arranged in ascending order. If the median of the data is 19, then find the value of x.

6, 9, 15, x + 4, x + 8, x + 12, 30, 32

A. 5

B. 8

C. 10

D. 13 ✓

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Q13 Mathematics

If the income of Richa is $9\frac{1}{11}\%$ more than that of Meena, then the income of Meena is less than that of Richa by:

A. $8\frac{10}{12}\%$

B. $8\frac{3}{12}\%$

C. $7\frac{10}{12}\%$

D. $8\frac{4}{12}\%$ ✓

Q14 Mathematics

If $f(x)=\frac{x+1}{x-1}$, find the value of $f(f(f(2)))$.

A. 1

B. 2

C. -1

D. 3 ✓

Q15 Mathematics

If $A : B = 3 : 5$ and $B : C = 4 : 7$, then the value of $A : B : C$ is:

A. 12 : 20 : 35 ✓

B. 20 : 12 : 5

C. 3 : 5 : 7

D. 12 : 35 : 20

Q16 Mathematics

If the roots of the equation $(4 + m)x^2 + (m + 1)x + 1 = 0$ are equal, then find the values of m.

A. $m = -1, -3$

B. $m = 0, 5$

C. $m = 5, -3$ ✓

D. $m = 2, 3$

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Q17 Mathematics

The arithmetic mean of x observations is m. If two observations 0 and m are added, then the new mean will be:

A. $\frac{m(x+1)}{x+2}$ ✓

B. $\frac{m}{x+1}$

C. m

D. $\frac{mx}{x+1}$

Q18 Mathematics

The speed of a stream is 3 km/h and the speed of a man in still water is 6 km/h. The time taken by the man to swim 37 km downstream is:

A. $4\frac{1}{3}$ h

B. $4\frac{3}{4}$ h

C. $1\frac{3}{4}$ h

D. $4\frac{1}{9}$ h ✓

Q19 Mathematics

1.236576576...

can be written in the form of:

A. $\frac{123534}{99000}$

B. $\frac{123534}{99900}$ ✓

C. $\frac{125434}{99900}$

D. $\frac{125334}{99000}$

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Q20 Mathematics

The value of $1+2+3+\ldots+30+31+30+29+\ldots+3+2+1 = ?$

A. 999

B. 961 ✓

C. 1000

D. 900

Q21 Mathematics

Solve the following.

$3.142 + 3.61 - 2.12 + 4 - 7.6 = ?$

A. 2.002

B. 1.032 ✓

C. 10.02

D. 1.002

Q22 Mathematics

If the LCM of $20x^3y^2$ and $10x^4y^4$ is $20x^4y^4$, find the HCF.

A. $20x^3y^2$

B. $20x^2y^2$

C. $10x^2y^2$

D. $10x^3y^2$ ✓

Q23 Mathematics

If $\sqrt{45} + \sqrt{125} = 17.89$, then what will be the value of $\sqrt{180} + \sqrt{80}$?

(Give your answer to one decimal place.)

A. 22.4 ✓

B. 21.6

C. 13.5

D. 71.9

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Q24 Mathematics

If $p = 5 - 2\sqrt{6}$, then find the value of $p^2 + \frac{1}{p2}$

A. $25 + \sqrt{6}$

B. 100

C. $\sqrt{6} - \sqrt{5}$

D. 98 ✓

Q25 Mathematics

Find the least number which must be added to the number 6412 to get a perfect square.

A. 181

B. 129

C. 149 ✓

D. 150

Q26 Mathematics

There is 60% increase in an amount in 6 years at simple interest. What will be the compound interest of ₹10,000 after 3 years at the same rate?

A. ₹3,310 ✓

B. ₹13,500

C. ₹3,500

D. ₹13,310

Q27 Mathematics

If $\sin(3x - 20)° = \cos(20 - 3y)°$, then value of $x - y$ will be:

A. 60°

B. 30° ✓

C. 45°

D. 20°

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Q28 Mathematics

Out of four consecutive numbers, the sum of the first two numbers is equal to the fourth number. What is half of the sum of the four numbers?

A. 7 ✓

B. 14

C. 2

D. 9

Q29 Mathematics

The length of a tangent drawn to a circle of radius 4 cm from a point 5 cm away from the center of the circle is:

A. $3\sqrt{3}$ cm

B. 5 cm

C. $5\sqrt{3}$ cm

D. 3 cm ✓

Q30 Mathematics

A train 180 m long is running at a speed of 90 km/h. How long will it take to pass a post?

A. 5.5 s

B. 7.8 s

C. 7 s

D. 7.2 s ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The sides of a parallelogram are $3x + 2$ and $5x + 4$. It has a perimeter of 44 cm and an area of 64 cm^2. The value of the acute angle between its sides in degrees is:

A. between 60° and 75°

B. between 30° and 60° ✓

C. greater than 75°

D. less than 30°

Q2 Mathematics

Let N be the greatest number such that when 1300, 4660, and 6900 are divided by N, the remainder is the same. The sum of the digits in N is:

A. 4 ✓

B. 6

C. 5

D. 3

Q3 Mathematics

A student erroneously multiplied a number by $\frac{2}{5}$ instead of $\frac{5}{2}$. The percentage error in the calculation is:

A. 24%

B. 84% ✓

C. 54%

D. 74%

Q4 Mathematics

Lengths of a triangle are positive integers. If two of its sides measure 6cm, 3cm then the number of such distinct triangles is:

A. 5 ✓

B. 9

C. 3

D. 7

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Q5 Mathematics

In a bucket, milk and water are mixed in the ratio 2 : 1. If the ratio of milk to water is to be 1 : 2, the quantity of water to be added to the mixture is:

A. $\frac{1}{3}$ of the bucket

B. one full bucket ✓

C. $\frac{1}{4}$ of the bucket

D. half of the bucket

Q6 Mathematics

A rectangle has a length 3 m more than its width and a perimeter numerically equal in value to its area. The integral part of the value of its diagonal is:

A. 7

B. 8

C. 6 ✓

D. 9

Q7 Mathematics

When cost price of x articles is equal to selling price of y articles, the profit is 25 %. Then x : y is equal to:

A. 3 : 5

B. 4 : 5

C. 5 : 4 ✓

D. 5 : 3

Q8 Mathematics

The semicircle of area 1250 π cm^2 is inscribed inside a rectangle. The diameter of the semicircle coincides with the length of the rectangle. The area of the rectangle is:

A. 5000 cm^2 ✓

B. 2000 cm^2

C. 3000 cm^2

D. 4000 cm^2

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Q9 Mathematics

A man bought a horse for a certain amount and sold it at a loss of 8%. If he had received ₹1,800 more, he would have gained $14\frac{1}{2}\%$. The cost price of the horse is:

A. ₹3500

B. ₹6000

C. ₹8000 ✓

D. ₹5000

Q10 Mathematics

Which of the following is valid for $(a + b)^2 = a^2 + b^2$

A. May be true for only a finite number of (a, b)

B. May be true for infinite number of (a , b) ✓

C. May be true for exactly one pair (a, b)

D. Cannot be true for any set of (a , b)

Q11 Mathematics

A solid sphere of surface area S, is cut into four equal pieces by two radial planes. The total surface area of all the pieces :

A. becomes 4S

B. becomes 3S

C. becomes 2S ✓

D. remains S

Q12 Mathematics

The greatest number of four digits which is divisible by 15, 20, 25, and 45 is:

A. 9990

B. 9090

C. 9900 ✓

D. 9000

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Q13 Mathematics

If x% of y = y% of z, then:

A. $x = 2z$

B. $x = 4z$

C. $x = 3z$

D. $x = z$ ✓

Q14 Mathematics

$\frac{(3\sqrt{5}+\sqrt{125})}{(\sqrt{80}+6\sqrt{5})}$ is:

A. a natural number

B. an irrational number

C. a rational number ✓

D. an integer

Q15 Mathematics

A boy does $\frac{1}{4}$ th of the work done by a man in the same time. 15 men complete a particular work in 17 days. If 3 men are replaced by 3 boys, the work will be completed in:

A. 18 days

B. 20 days ✓

C. 22 days

D. 24 days

Q16 Mathematics

When a number is divided by 45, it leaves a remainder of 28. The remainder when the same number is divided by 15 is:

A. 13 ✓

B. 10

C. 12

D. 11

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Q17 Mathematics

In an election, candidate A got 75% of total valid votes. If 15% of total votes were declared invalid and the total number of votes is 560000, then the number of valid votes polled in favour of A is:

A. 356000

B. 357000 ✓

C. 358000

D. 355000

Q18 Mathematics

The ratio of the perimeter to the length of a rectangle is 5 : 1. If the area of the rectangle is 216 cm^2, then the length of the rectangle (in cm) is:

A. 14

B. 16

C. 18

D. 12 ✓

Q19 Mathematics

The HCF and LCM of 36 and N are 9 and 180 respectively. N is equal to:

A. 65

B. 63

C. 45 ✓

D. 90

Q20 Mathematics

The numbers x and y are such that x : y = 4 : 5. If x is more than z by 20 %, then y will be more than z by:

A. 40%

B. 30%

C. 60%

D. 50% ✓

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Q21 Mathematics

Which of the following options is equal to

$16 \div 4 \times 2 - 5 + 1$?

A. $\{16 \div (4 \times 2)\} - (5 + 1)$

B. $[\{16 \div (4 \times 2)\} - 5] + 1$

C. $\{(16 \div 4) \times 2\} - (5 + 1)$

D. $[\{(16 \div 4) \times 2\} - 5] + 1$ ✓

Q22 Mathematics

If $\left(a + b\sqrt{2}\right)^2 = 19 + 6\sqrt{2}$, then a is equal to:

A. 2

B. 3

C. 1 ✓

D. 4

Q23 Mathematics

The ratio in lowest terms of 4767 and 11123 is:

A. 3 : 27

B. 3 : 17

C. 3 : 13

D. 3 : 7 ✓

Q24 Mathematics

The number 1.1121231234123345..... is a/an:

A. natural number

B. rational number

C. integer

D. irrational number ✓

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Q25 Mathematics

The value of $\sqrt{4}$ is:

A. 2 or –2 ✓

B. only 2

C. only –2

D. 4

Q26 Mathematics

If the speeds of a train in 10 successive hours are a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9, and a_{10}, then the average speed of the train is:

A. harmonic mean of a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9, and a_{10}

B. geometric mean of a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9, and a_{10}

C. arithmetic mean of a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9, and a_{10} ✓

D. median of a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, a_9, and a_{10}

Q27 Mathematics

The sum of two angles of a triangle is equal to its third angle. Find the measure of the third angle?

A. 90° ✓

B. 120°

C. 50°

D. 60°

Q28 Mathematics

The area of a rectangle is 60 units and its perimeter is 34 units. Then its diagonal is:

A. 14 units

B. 13 units ✓

C. 17 units

D. 12 units

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Q29 Mathematics

A man completes a work in 15 days by working 4 h per day for 5 days, 5 h per day for 5 days and 6 h per day for 5 days. If he works 8 h per day with half an hour lunch break, he will complete the work in:

A. 10 days ✓

B. 7.5 days

C. 12 days

D. 8 days

Q30 Mathematics

Ram is at A and Shyam is at B. They proceed towards each other simultaneously. After meeting each other in the way, Ram takes 2 h to reach B and Shyam takes 8 h to reach A. If the speed of Ram is 40 km/h, the speed of shyam is:

A. 20 km/h ✓

B. 35 km/h

C. 30 km/h

D. 25 km/h

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

1000 boys and 600 girls are examined in a test. If 40% of the boys and 35% of the girls passed, then find the percentage (approximately) of the total number of candidates who failed in the test.

A. 31.75%

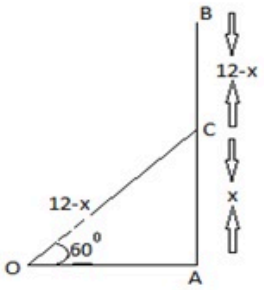
B. 70.25%

C. 61.88% ✓

D. 50.89%

Q2 Mathematics

A tree, 12 m in height, is broken by the wind in such a way that its top touches the ground and makes an angle of 60° with the ground. At what height from the bottom is the tree broken by the wind?



A. $(24\sqrt{2} - 30)$m

B. $(24\sqrt{3} - 36)$ m ✓

C. $(2\sqrt{3} - 3)$m

D. $24\sqrt{3}$m

Q3 Mathematics

Find the value of x such that the expression $(12.95 \times 12.95 + 12.95 \times x + 0.03 \times 0.03)$ will be perfect square.

A. 0.015

B. 0.06 ✓

C. 0.006

D. 0.6

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Q4 Mathematics

If α and β are the zeros of the polynomial $f(x) = kx^2 + 4x + 4$ such that $\alpha^2 + \beta^2 = 24$, then find the positive value of k.

A. $\frac{4}{3}$

B. $\frac{1}{3}$

C. $\frac{3}{4}$

D. $\frac{2}{3}$ ✓

Q5 Mathematics

In a college, if 15% of the boys are the same in number as one-third of the girls, then find the ratio of the number of boys to that of girls in the college.

A. 20 : 7

B. 7 : 20

C. 20 : 9 ✓

D. 9 : 20

Q6 Mathematics

Find the least number by which 588 must be multiplied to make it a perfect square.

A. 5

B. 4

C. 3 ✓

D. 2

Q7 Mathematics

Find the value of $\frac{0.868 \times 0.237 + 0.868 \times 0.763}{0.7 \times 0.936 + 0.7 \times 0.064}$.

A. 0.124

B. 12.4

C. 1.42

D. 1.24 ✓

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Q8 Mathematics

The following table shows the number of students of particular ages in a class of 40 students. Find the mean age of the students.

Age in years (x)	15	16	17	18	19	20
No of students (f)	3	8	10	10	5	4

A. 15.45

B. 17.45 ✓

C. 18.25

D. 16.35

Q9 Mathematics

Ravi took a loan from a bank at the rate of 8% p.a. simple interest. After 5 years, he had to pay an interest of ₹6,400 for the period. Find the principal amount borrowed by Ravi.

A. ₹16,000 ✓

B. ₹15,000

C. ₹18,000

D. ₹10,000

Q10 Mathematics

Car A is twice as fast as car B, and car B is thrice as fast as car C. The distance covered by car C in 60 minutes will be covered by car B in:

A. 25 minutes

B. 16 minutes

C. 20 minutes ✓

D. 18 minutes

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Q11 Mathematics

500 persons are taking a dip in a cuboidal pond, which is 80 m long and 50 m broad. What is the rise in the water level in the pond, if the average displacement of the water by one person is 0.04 m^3?

A. 0.5 cm ✓

B. 1 cm

C. 2.5 cm

D. 1.5 cm

Q12 Mathematics

Determine the LCM of

$\frac{2}{3}, \frac{4}{9}, \frac{8}{15}$ and $\frac{10}{21}$.

A. $\frac{20}{3}$

B. $\frac{3}{20}$

C. $\frac{3}{40}$

D. $\frac{40}{3}$ ✓

Q13 Mathematics

If $\tan\theta = \frac{12}{13}$, then find the value of $\frac{2\sin\theta\cos\theta}{\cos^2\theta - \sin^2\theta}$.

A. $\frac{13}{12}$

B. $\frac{413}{25}$

C. $\frac{312}{25}$ ✓

D. $\frac{512}{25}$

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Q14 Mathematics

Find the number of terms in the sequence 4, 8, 16, 32, … 512.

A. 7

B. 10

C. 9

D. 8 ✓

Q15 Mathematics

Find the value of the series

$(2^2 + 4^2 + 6^2 + ... + 22^2)$.

A. 1224

B. 2024 ✓

C. 1042

D. 4220

Q16 Mathematics

Determine the values of a and b for which the following system of equations has infinite solutions.

$2x - (a - 4)y = 2b + 1$, $4x - (a - 1)y = 5b - 1$

A. $a = 7$ and $b = 3$ ✓

B. $a = 7$ and $b = 1$

C. $a = 5$ and $b = 2$

D. $a = 2$ and $b = 7$

Q17 Mathematics

One-fourth of a number is equal to three-eighth of another number. If 30 is added to the first number, then it becomes six times that of the second number. The first number is:

A. 10 ✓

B. 12

C. 15

D. 20

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Q18 Mathematics

If $x = a\sin\theta$, and $y = b\tan\theta$, then find the value of $\frac{a^2}{x^2} - \frac{b^2}{y^2}$.

A. 1 ✓

B. 2

C. -1

D. 0

Q19 Mathematics

Find the largest three-digit number that is exactly divisible by 6, 9, 12 and 15.

A. 900 ✓

B. 895

C. 999

D. 925

Q20 Mathematics

Ramesh buys an article for 15% less than its original value, and sells it for 10% more than its original value. Find the percentage of gain (approximately).

A. 25.62%

B. 41.52%

C. 31.25%

D. 29.41% ✓

Q21 Mathematics

If the mean of the following data is 15, then find the value of k.

x	5	10	15	20	25
f	6	k	6	10	5

A. 7

B. 8 ✓

C. 6

D. 10

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Q22 Mathematics

When the numerator of a fraction increases by 6, the fraction increases by three-fourth. The denominator of the fraction is:

A. 12

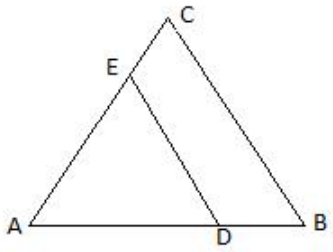
B. 8 ✓

C. 10

D. 6

Q23 Mathematics

In the given figure, DE || BC. If AD = x, DB = x – 2, AE = x + 2 and EC = x – 1, then find the value of x.



A. 3

B. 4 ✓

C. 5

D. 2

Q24 Mathematics

Find the compound interest on an amount of ₹8,000 at 5% p.a. for 2 years, compounded annually.

A. ₹920

B. ₹820 ✓

C. ₹780

D. ₹630

Q25 Mathematics

If the population of a village increased from 1,75,000 to 2,62,500 in 5 years, then find the average percentage increase in the population per year.

A. 9%

B. 12%

C. 10% ✓

D. 15%

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Q26 Mathematics

If two cubes, each with a side of 10 cm, are joined end to end, then find the surface area of the resulting cuboid.

A. $1000\ cm^2$ ✓

B. $100\ cm^2$

C. $500\ cm^2$

D. $300\ cm^2$

Q27 Mathematics

Two trains, going in opposite directions, start at the same time from two stations that are 250 km apart. The trains meet each other at a distance of 130 km from one of the stations. Find the ratio of their speeds.

A. 13 : 12 ✓

B. 12 : 11

C. 9 : 8

D. 15 : 14

Q28 Mathematics

A shopkeeper purchased an article for ₹3,000. What will be the percentage of profit (approximately) if he sells that article for ₹3,600?

A. 15 %

B. 22 %

C. 20 % ✓

D. 17 %

Q29 Mathematics

Find the value of

$$\left(\frac{\sqrt{3}-1}{\sqrt{3}+1}+\frac{\sqrt{3}+1}{\sqrt{3}-1}+\frac{2-\sqrt{3}}{2+\sqrt{3}}+\frac{2+\sqrt{3}}{2-\sqrt{3}}\right).$$

A. 18 ✓

B. 14

C. 20

D. 16

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Q30 Mathematics

A and B can finish a project in 10 days, B and C can finish it in 20 days, and C and A can finish it in 30 days. If A, B and C work together, they will finish the project in:

A. $\frac{110}{7}$ days

B. $\frac{130}{11}$ days

C. $\frac{120}{11}$ days ✓

D. $\frac{120}{7}$ days

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Mathematics

30 Questions • Answer Key

Q1 Mathematics

Determine the smallest number which when divided by 12,16,20,25 and 30 leaves the same remainder 3 in each case.

A. 1203 ✓

B. 1023

C. 1303

D. 1233

Q2 Mathematics

P, Q and R are on a trip by a car. P drives during the first hour at an average speed of 40 km/h. Q drives during the next 2 hours at an average speed of 50 km/h. R drives for the next 3 hours at an average speed of 60km/h. If they reached their destination after exactly 6 hours, then find their mean speed approximately.

A. 50.23 km/h

B. 45.25 km/h

C. 53.33 km/h ✓

D. 61.35 km/h

Q3 Mathematics

Calculate the compound interest on ₹15,000 in one year at 4% per annum, if the interest is compounded half yearly.

A. ₹ 600

B. ₹ 5606

C. ₹ 6060

D. ₹ 606 ✓

Q4 Mathematics

Which of the following numbers will completely divide $(4^{61} + 4^{62} + 4^{63} + 4^{64})$?

A. 13

B. 3

C. 11

D. 10 ✓

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Q5 Mathematics

If a positive number when decreased by 3, is equal to 28 times the reciprocal of the number, then find the number.

A. 7 ✓

B. 6

C. 8

D. 5

Q6 Mathematics

Find the value of $7 \times 0.7 \times 0.07 \times 0.007 \times 70$:

A. 0.16807 ✓

B. 1.6807

C. 0.016807

D. 0.0016807

Q7 Mathematics

Calculate the smallest number which should be subtracted from 0.000327 to make it a perfect square.

A. 0.03

B. 0.04

C. 0.000004

D. 0.000003 ✓

Q8 Mathematics

Find the mean of the following data:

x:	19	21	23	25	27	29	31
f:	13	15	16	18	16	15	13

A. 25 ✓

B. 30

C. 20

D. 28

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Q9 Mathematics

If $5\ tan\alpha = 4$, then find the value of $\frac{5\ sin\alpha - 3\ cos\alpha}{5\ sin\alpha + 2\ cos\alpha}$.

A. $\frac{1}{6}$ ✓

B. 3

C. $\frac{1}{2}$

D. 6

Q10 Mathematics

A number when divided by 280 leaves 73 as the remainder. When the same number is divided by 35, the remainder will be:

A. 7

B. 3 ✓

C. 2

D. 4

Q11 Mathematics

If $x = \frac{\sqrt{5}+1}{\sqrt{5}-1}$ and $y = \frac{\sqrt{5}-1}{\sqrt{5}+1}$, then find the value of $x^2 + y^2 - 4$.

A. 4

B. 5

C. 2

D. 3 ✓

Q12 Mathematics

3 boys and 5 girls can finish a project in 6 days, while 2 boys and 7 girls can finish it in 8 days. In how many days will 8 girls complete it?

A. 33 ✓

B. 30

C. 36

D. 35

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Q13 Mathematics

If a man sold 20 books for ₹1,800, gaining there by the cost price of 5 books, then find the cost price of a book.

A. ₹50

B. ₹68

C. ₹85

D. ₹72 ✓

Q14 Mathematics

If a man travels from A to B at a speed of 50 km/h and returns by increasing his speed by 40%, then find his average speed (to 2 decimal places) for both the trips.

A. 62.35 km/h

B. 47.28 km/h

C. 58.33 km/h ✓

D. 55.34 km/h

Q15 Mathematics

If the sum of the squares of zeros of quadratic polynomial $f(x) = x^2 - 8x + k$ is 40, then find the value of k.

A. 12 ✓

B. 10

C. 11

D. 14

Q16 Mathematics

The difference of two numbers is 20% of the larger number. If the smaller number is 40, then find the larger number.

A. 45

B. 60

C. 40

D. 50 ✓

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Q17 Mathematics

If three cubes whose edges measure 3 cm, 4 cm and 5 cm respectively, are melted to form a single cube, then find the edge of the new cube.

A. 7 cm

B. 4 cm

C. 5 cm

D. 6 cm ✓

Q18 Mathematics

Find three numbers such that their ratio is 3 : 4 : 5 and their HCF is 7.

A. 6; 8; 10

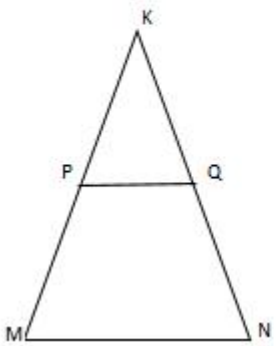
B. 24; 32; 40

C. 12; 16; 20

D. 21; 28; 35 ✓

Q19 Mathematics

In the given Δ KMN, PQ is parallel to MN. If $\frac{KP}{PM} = \frac{4}{13}$ and KN = 20.4 cm, find KQ



A. 5.1 cm

B. 8.2 cm

C. 3.6 cm

D. 4.8 cm ✓

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Q20 Mathematics

Tony purchases two cars A and B at a total cost of ₹6,50,000. He sells car A with 20% profit and car B at a loss of 25% and gets the same selling price for both the cars. What are the purchasing prices of car A and car B respectively?

A. ₹4,50,000; ₹2,00,000

B. ₹2,50,000; ₹4,00,000 ✓

C. ₹2,00,000; ₹4,50,000

D. ₹3,00,000; ₹3,50,000

Q21 Mathematics

Find the greatest ratio in the following.

A. 5 : 18

B. 13 : 21

C. 15 : 28

D. 19 : 27 ✓

Q22 Mathematics

If the polynomial $6x^4 + 8x^3 + 17x^2 + 21x + 7$ is divided by another polynomial $3x^2 + 4x + 1$, the remainder comes out to be $ax + b$, find a and b.

A. $a = 1; b = 1$

B. $a = 1; b = 3$

C. $a = 1; b = 2$ ✓

D. $a = 3; b = 1$

Q23 Mathematics

If $a\ cos\theta - b\ sin\theta = c$, then find the value of $a\ sin\theta + b\ cos\theta$.

A. $\sqrt{b^2 + c^2 - a^2}$

B. $\pm\sqrt{a^2 + c^2 - b^2}$

C. $\pm\sqrt{a^2 + b^2 - c^2}$ ✓

D. $\sqrt{a^2 + b^2 + c^2}$

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Q24 Mathematics

If three-fourth of a number is 50 more than its one-third, then find the number.

A. 120 ✓

B. 140

C. 100

D. 130

Q25 Mathematics

A glass cylinder with diameter 20 cm has water to a height of 9 cm. A metal cube of 8 cm edge is immersed in it completely. Calculate the height (correct to 1 decimal place) by which the water will rise in the cylinder (by taking $\pi = 3.142$).

A. 1.4 cm

B. 2.6 cm

C. 2 cm

D. 1.6 cm ✓

Q26 Mathematics

Find the missing frequency(p) for the following distribution whose mean is 8 :

x:	3	5	7	9	11	13
f:	6	8	15	p	8	4

A. 18

B. 12

C. 25 ✓

D. 10

Q27 Mathematics

At what rate percent per annum will the simple interest in 15 years on a sum of money be $\frac{3}{4}$ of the sum invested?

A. 3%

B. 5% ✓

C. 6%

D. 4%

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Q28 Mathematics

An observer 1.5 m tall is standing 28.5 m away at the same level as the foot of a tower. If angle of elevation of the observer watching the top of the tower is 45 degrees then what is the height of the tower?

A. 30 m ✓

B. 20 m

C. 35 m

D. 25 m

Q29 Mathematics

If x is the closest approximation to the product $0.3333 \times 0.25 \times 0.499 \times 0.125 \times 24$, then find the value of x.

A. $\frac{3}{4}$

B. $\frac{3}{8}$

C. $\frac{1}{8}$ ✓

D. $\frac{2}{5}$

Q30 Mathematics

The total population of a village is 4,000. The number of males and females increases by 10% and 20% respectively and consequently the population of the village becomes 4500. What was the number of males in the village prior to the new members coming in?

A. 2000

B. 3000 ✓

C. 2500

D. 4000

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The value of $8 + \left(\frac{1}{2} + \frac{1}{4}\right) \times 16$ is:

A. 10

B. 4

C. 20 ✓

D. 35

Q2 Mathematics

The value of $\sqrt{\frac{1 + \cos 2A}{1 - \cos 2A}}$ = ? (Note: A is non zero)

A. tan A

B. sin A

C. cos A

D. cot A ✓

Q3 Mathematics

The value of $4 \times 5 \div 2 - 8 \times 7 + 9 - (3 + 2)$ is:

A. -42 ✓

B. 70

C. 21

D. 35

Q4 Mathematics

What will be the LCM and HCF of 27 and 81?

A. 27 ; 27

B. 81 ; 81

C. 27 ; 81

D. 81 ; 27 ✓

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Q5 Mathematics

If $x^2 + 1 = 2x$, then find $x - (\frac{1}{x})$

A. 0 ✓

B. 2

C. 4

D. 12

Q6 Mathematics

If $a = \frac{3}{7}b$, then the value of $\frac{8a - b}{2a + 3b}$ is:

A. 17

B. $\frac{21}{17}$

C. $\frac{17}{2}$

D. $\frac{17}{27}$ ✓

Q7 Mathematics

Vikas can complete a job in 15 days. Bablu can do the same job in 10 days. In how many days can they complete the job if they work together?

A. 5 days

B. 6 Days ✓

C. 8 Days

D. 9 Days

Q8 Mathematics

Vikas buys an old bike for ₹30,000 and spends ₹5,000 on its repairs. If he sells the bike for ₹42,000, his gain percentage is:

A. 18%

B. 20% ✓

C. 17%

D. 19%

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Q9 Mathematics

If the radius of a cylinder is 5 cm and its vertical height is 172 cm, what will be the volume?

A. $1500\ \pi cm^3$

B. $4100\ \pi cm^3$

C. $1000\ \pi cm^3$

D. $4300\ \pi cm^3$ ✓

Q10 Mathematics

The value of $[3 \div 5 - 8 \text{ of } 4 + 3 \times \{8 \div 2 - (4 + 3)\}]$ is:

A. $\frac{201}{5}$

B. $\frac{101}{5}$

C. $-\frac{202}{10}$

D. $-\frac{202}{5}$ ✓

Q11 Mathematics

If $x : y = 2 : 3$ then what is the value of $(5x+3y) : (5x-3y)$

A. $19 : 2$

B. $19 : 1$ ✓

C. $19 : 3$

D. $9 : 1$

Q12 Mathematics

If $x + y = 5$ and $xy = 6$, then find $x^3 + y^3$

A. 45

B. 55

C. 35 ✓

D. 25

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Q13 Mathematics

Two ships are sailing in the sea on the two sides of a lighthouse. The angles of elevation of the top of the lighthouse as observed from the ships are $45°$ and $60°$ respectively. If the lighthouse is 81 m high, then the distance between two ships is:

A. $\frac{(1+\sqrt{3})}{81\sqrt{3}}$ m

B. $\frac{(1+\sqrt{3})}{\sqrt{3}}$ m

C. $\frac{[81(1+\sqrt{3})]}{\sqrt{3}}$ m ✓

D. $\frac{81}{\sqrt{3}}$ m

Q14 Mathematics

The area of a square field is 7200 m^2. How long will a cycle take to cross the field diagonally at a constant rate of 4 km/h?

A. $\frac{9}{5}$ minutes ✓

B. 30 minutes

C. 25 minutes

D. 5 minutes

Q15 Mathematics

A train covers a certain distance at a speed of 240 km/h in 5 hours. If a flight has to cover the same distance in 45 mins, it must travel at a speed of:

A. 1600 km/h ✓

B. 1200 km/h

C. 1250 km/h

D. 1440 km/h

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Q16 Mathematics

The value of $180 \div 20\{(15-6)+(24-18)\}$ is:

A. 110

B. $\frac{9}{15}$ ✓

C. 135

D. 180

Q17 Mathematics

The sum of the interior angles of a polygon measure $3240°$. How many sides does the polygon have?

A. 15

B. 5

C. 20 ✓

D. 10

Q18 Mathematics

A vender bought toffees at 10 for a rupee. How many for a rupee must he sell to gain 25% ?

A. 6

B. 8 ✓

C. 30

D. $\frac{1}{5}$

Q19 Mathematics

The value of x, if $3x+4 \times 8 \div 9 = x \div 3 - 1$, is:

A. 2

B. $\frac{21}{24}$

C. 1

D. $-\frac{41}{24}$ ✓

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Q20 Mathematics

Ashokbhai spends 10% of his monthly income and saves ₹5,400 every month. What is his monthly income?

A. ₹5,400

B. ₹5,000

C. ₹6,000 ✓

D. ₹6,400

Q21 Mathematics

If $a : b = \sqrt{7} : \sqrt{3}$, then the value of $(3a + 2b) : (3a - 2b)$ is equal to:

A. $\frac{2 + \sqrt{21}}{(2 - \sqrt{21})}$

B. $\frac{2 + \sqrt{21}}{(-2 + \sqrt{21})}$ ✓

C. $\frac{2 + \sqrt{21}}{(-2 - \sqrt{21})}$

D. $\frac{2 - \sqrt{21}}{(2 + \sqrt{21})}$

Q22 Mathematics

An observer 2 m tall is $150\sqrt{3}$ m away from a tower. The angle of elevation from his eye to the top of the tower is $60°$. The height of the tower is:

A. 452 m ✓

B. 480 m

C. 400 m

D. 450 m

Q23 Mathematics

The value of $15 - (6 + 6 \times 6) \div (2 + 5)$ is:

A. 7

B. 9 ✓

C. 5

D. 8

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Q24 Mathematics

A person crosses a 500 m long street in 10 minutes. What will the person's speed be in kilometres per hour?

A. 7 km/h

B. 3 km/h ✓

C. 5 km/h

D. 8 km/h

Q25 Mathematics

If $a \cot \theta = b$, then the value of $\frac{a\cos\theta - b\sin\theta}{a\cos\theta + b\sin\theta} = ?$

A. 2a

B. a + b

C. 0 ✓

D. a - b

Q26 Mathematics

If $x\cos 45°\sin 120° + \sin 60° = -x\sin 90° + 1$, then the value of x is:

A. $\frac{2\sqrt{2} - \sqrt{6}}{2\sqrt{2} + \sqrt{3}}$ ✓

B. $\frac{(2 - \sqrt{3})}{(\sqrt{2} + \sqrt{3})}$

C. $\frac{(2 - \sqrt{3})}{(2\sqrt{2} + \sqrt{3})}$

D. $\frac{(2 + \sqrt{3})}{(\sqrt{2} + \sqrt{3})}$

Q27 Mathematics

What will be smallest number, which on adding 25 to it, is exactly divisible by 25, 36 and 40?

A. 2225

B. 25

C. 3725

D. 3575 ✓

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Q28 Mathematics

What will be the LCM of 48 and 65?

A. 1

B. 3120 ✓

C. 48

D. 65

Q29 Mathematics

The perimeter of a rhombus is 68 cm and one of its diagonals is 16 cm. Find the area of the rhombus.

A. 240 sq cm ✓

B. 220 sq cm

C. 200 sq cm

D. 320 sq cm

Q30 Mathematics

The cost price of 120 pens is the same as the selling price of x pens. If the profit is 25%, then the value of x is:

A. 96 ✓

B. 91

C. 95

D. 90

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

In Δ PQR, QR is extended up to S so that RS = RP. If $\angle PRQ = 70°$ and $\angle QPS = 110°$ then find the measure of $\angle PQS$.

A. $50°$

B. $35°$ ✓

C. $65°$

D. $55°$

Q2 Mathematics

The cost price of 19 pens is equal to the selling price of 16 pens. Percentage gain is:

A. $18\frac{3}{4}\%$ ✓

B. 12.5%

C. 15%

D. $15\frac{3}{4}\%$

Q3 Mathematics

The difference between compound interest and simple interest, at the same rate, on an amount of ₹15,000 for 2 years is ₹24. What is the rate of interest per annum?

A. 6%

B. 10%

C. 4% ✓

D. 8%

Q4 Mathematics

If $(1 + 2 + x) - (0.12 - 0.42 + 0.94) = 4$, then what will be the value of x?

A. 1.64 ✓

B. 1.54

C. 2.64

D. 2.54

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Q5 Mathematics

Which of the following numbers is divisible by 11?

A. 332155

B. 202963

C. 181560

D. 203456 ✓

Q6 Mathematics

Select the number that can replace the question mark (?) in the following equation.

$?+\frac{18}{24}+3\frac{3}{4}=23\frac{13}{24}$

A. $19\frac{13}{24}$

B. $19\frac{11}{24}$

C. 1

D. $19\frac{1}{24}$ ✓

Q7 Mathematics

Two employees Anita and Sarita are paid a total sum of ₹6,600 per month. If Anita is paid 120% of the sum paid to Sarita, then what amount will Sarita get?

A. ₹4,500

B. ₹3,000 ✓

C. ₹30,000

D. ₹5,000

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Q8 Mathematics

X purchased a car at ₹ 1,50,000 and then sold it to Y at a profit of 5%. Y later sold it back to X at a loss of 2%. Find the overall profit or loss for X in the entire transaction

A. X gain ₹3,150 ✓

B. X loss ₹4,350

C. X gain ₹4,500

D. X gain ₹4,350

Q9 Mathematics

In triangle ABC, bisector of $\angle ABC$ and $\angle ACB$ meet at O. If $\angle BAC = 60°$, then find the measure of $\angle BOC$.

A. $120°$ ✓

B. $160°$

C. $80°$

D. $130°$

Q10 Mathematics

Find the area of an equilateral triangle whose perimeter is 24 cm.

A. $144\ cm^2$

B. $24\sqrt{3}\ cm^2$

C. $16\sqrt{3}\ cm^2$ ✓

D. $16\ cm^2$

Q11 Mathematics

Solve the following.

$4 \times 36 - 6[3 + 2(216 \div 6) - 51] = ?$

A. 10

B. 0 ✓

C. 1

D. -1

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Q12 Mathematics

Find the smallest number which must be subtracted from 63535 to make it a perfect square.

A. 25

B. 31 ✓

C. 30

D. 41

Q13 Mathematics

How many digits will be there to the right of the decimal point in the product of 99.75 and 0.05554?

A. 8

B. 6 ✓

C. 7

D. 5

Q14 Mathematics

A salesman has to cover 6 km in $\frac{3}{4}$ h. If he covers $\frac{1}{2}$ of the distance in $\frac{2}{3}$ of the total time, then what must be his speed (in km/h) to cover the remaining distance in the remaining time?

A. 8

B. 15

C. 6

D. 12 ✓

Q15 Mathematics

If $r \sin\theta = \frac{7}{2}$ and $r \cos\theta = \frac{7\sqrt{3}}{2}$, then what will be the value of r?

A. -1

B. $\sqrt{3}$

C. 5

D. 7 ✓

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Q16 Mathematics

The ratio of income of Aamir to that of Ali is 5 : 3 and they expend in the ratio of 9 : 5 respectively. If Aamir saves ₹2,600 and Ali saves ₹1,800, Then their respective incomes are:

A. ₹8,000, ₹4,800 ✓

B. ₹6,000, ₹3,600

C. ₹9,000, ₹5,400

D. ₹8,500, ₹5,100

Q17 Mathematics

How many words can be formed with or without meaning by using all letters of the word DELHI?

A. 1

B. 120 ✓

C. 20

D. 5

Q18 Mathematics

Find the HCF of $(3^{45} - 1)$ and $(3^{35} - 1)$.

A. 728

B. 81

C. 80

D. 242 ✓

Q19 Mathematics

If a number is increased by 20% and then it is decreased by 10%. Its net increase or decrease is:

A. 8% increase ✓

B. 10% increase

C. 10% decrease

D. 8% decrease

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Q20 Mathematics

Find the total surface area of a cone, if its radius and slant height are 2r and $\frac{1}{2}$ respectively.

A. $\pi\,(4r^2+1)$

B. $\frac{4r^2+1}{2}$

C. $\pi r\,(4r+1)$ ✓

D. $\pi r\,(2r+1)$

Q21 Mathematics

If $\sqrt{45}+\sqrt{125}=17.88$ then what will be the value of $\sqrt{180}+\sqrt{80}$?

A. 21.6

B. 22.35 ✓

C. 13.4

D. 22.2

Q22 Mathematics

If the average of a_1, a_2, a_3 and a_4 is 19.5, $a_1 = 21$ and the average of a_1, a_2 and a_3 is equal to the average of a_2, a_3 and a_4, then what will be the value of a_4 ?

A. 18

B. 25

C. 20

D. 21 ✓

Q23 Mathematics

The curve surface area of a cylindrical pillar is $264\ m^2$ and its volume is $924\ m^3$. Find the ratio of its height to its diameter.

A. 1 : 2

B. 7 : 3

C. 5 : 6

D. 3 : 7 ✓

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Q24 Mathematics

In a lottery, 96.5% of the participants did not win any prize but 700 participants won a prize. The total number of participants is:

A. 7000

B. 67550

C. 20000 ✓

D. 10000

Q25 Mathematics

Find the least number which is divisible by first ten natural numbers.

A. 1040

B. 77000

C. 2520 ✓

D. 5000

Q26 Mathematics

If we increase 50% of numerator and 80% of denominator of a fraction, then what fraction of the original will be the new fraction?

A. $\frac{6}{5}$

B. $\frac{5}{6}$ ✓

C. $\frac{5}{8}$

D. $\frac{7}{9}$

Q27 Mathematics

Two trains are running in the same direction with the speeds of 32 km/h and 26 km/h respectively from X and Y. If X is 42 km away from Y and if they meet at a point Z beyond Y, then the distance from Y to Z will be:

A. 182 km ✓

B. 236 km

C. 165 km

D. 148 km

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Q28 Mathematics

In ΔXYZ, XY = 12 cm and YZ = 18 cm. XW, the angle bisector of YXZ, meets YZ at W, such that YW : WZ is 4 : 5. Find the length of the third side of the triangle.

A. 12 cm

B. 15 cm ✓

C. 14 cm

D. 18 cm

Q29 Mathematics

The value of 987×999 is:

A. 986013 ✓

B. 980613

C. 996023

D. 976023

Q30 Mathematics

If $\tan A = \frac{8}{15}$ then find $\sin A + \cos A$.

A. $\frac{15}{11}$

B. $\frac{7}{17}$

C. $\frac{23}{17}$ ✓

D. $\frac{8}{11}$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Solve the following:

$(243)^2 \div (27)^2 \times 16 \div 8 = ?$

A. 162 ✓

B. 70

C. 1

D. 81

Q2 Mathematics

The HCF and LCM of two numbers are in the ratio of 1: 30 and the difference between the HCF and LCM is 493. Find the product of LCM and HCF.

A. 6064

B. 8670 ✓

C. 4040

D. 540

Q3 Mathematics

The cost price of a car was ₹1,50,000. It was sold by X at a profit of 5% to Y. It was later sold back to X by Y at a 1% loss. Find X's profit in the entire transaction.

A. ₹4,000

B. ₹1,575 ✓

C. ₹4,500

D. ₹3,150

Q4 Mathematics

Sarita buys two old Samsung and three Mi mobile phones for ₹40,200. If she sells the Samsung phones at a 10% profit and the Mi phones at a 20% profit then her total profit is ₹5,640. The cost price of the Mi phone is:

A. ₹5,000

B. ₹4,400

C. ₹5,400 ✓

D. ₹1,200

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Q5 Mathematics

Solve the following:

$(625)^{0.17} \times (625)^{0.08} = ?$

A. 1

B. 25

C. 5 ✓

D. 2.5

Q6 Mathematics

Every interior angle of a regular octagon is 135°. Find the exterior angle of the octagon.

A. 45° ✓

B. 55°

C. 75°

D. 65°

Q7 Mathematics

The angle of elevation of the sun when the length of the shadow of a pole is equal to its height is:

A. 30°

B. 60°

C. 90°

D. 45° ✓

Q8 Mathematics

ABC is an equilateral triangle and O is its circumcentre. If the side of triangle is 6 cm, then the ∠BOC is:

A. 30°

B. 60°

C. 36°

D. 120° ✓

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Q9 Mathematics

40 % is the passing criteria in an examination. Out of 9 students who appeared, 4 failed and the remaining received 80 %, 55 %, 52 %, 66 % and 81% marks. The median of the percentage marks is equal to:

A. 66%

B. 52% ✓

C. 81%

D. 58%

Q10 Mathematics

Two numbers are in the ratio 2 : 3; if 20 is added to 20% of the smaller number, it will be equal to 10% of the larger number plus 25. Then, the smaller number is: _____.

A. 100 ✓

B. 180

C. 160

D. 200

Q11 Mathematics

If one-fourth of half of a number is 25, then 20% of that number is:

A. 80

B. 20

C. 60

D. 40 ✓

Q12 Mathematics

The area of the greatest circle that can be inscribed inside a square of side 21cm is:

A. 347 cm^2

B. 351.5 cm^2

C. 346.5 cm^2 ✓

D. 350.5 cm^2

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Q13 Mathematics

If Reeta types the numbers from 2 to 222, both inclusive, then how many times will she have to press the buttons on the number pad?

A. 557 ✓

B. 558

C. 555

D. 556

Q14 Mathematics

A can complete a piece of work in 60 days. He worked for 15 days and B finished the remaining work in 30 days. If they work together then the work will be completed in:

A. 10 days

B. 12 days

C. 25 days

D. 24 days ✓

Q15 Mathematics

The smallest positive number which must be added to the greatest number of 4 digits in order that the sum may be exactly divisible by 307 is:

A. 306

B. 176

C. 132 ✓

D. 307

Q16 Mathematics

If $\sin(3A - 20^\circ) = \cos(20^\circ - 3B)$, then the value of A – B is:

A. 30° ✓

B. 45°

C. 60°

D. 20°

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Q17 Mathematics

PQ is a diameter of circle whose centre is O. If a point R lies on a circle and ∠RPO is 42°, then find ∠RQP.

A. 29°

B. 48° ✓

C. 51°

D. 25°

Q18 Mathematics

Find the smallest perfect square number which must be added to the number 12519 to get a perfect square number.

A. 9

B. 16

C. 20

D. 25 ✓

Q19 Mathematics

If $\cos^4\theta - \sin^4\theta = \frac{2}{3}$ then the value of $1 - 2\sin^2\theta$ is:

A. $\frac{5}{3}$

B. -1

C. 0

D. $\frac{2}{3}$ ✓

Q20 Mathematics

A bus moving at the speed of 45 km/h overtakes a truck 150 m ahead, going in the same direction in 30 sec. The speed of the truck is:

A. 25 km/h

B. 27 km/h ✓

C. 24 km/h

D. 20 km/h

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Q21 Mathematics

The floor of a hall is rectangular. Its length is 30 m and breadth is 24 m. How many carpets of size 6m × 4m are required to cover it?

A. 24 carpets

B. 36 carpets

C. 28 carpets

D. 30 carpets ✓

Q22 Mathematics

If $\sqrt{54}+\sqrt{150}=19.60$, then what will the value of $\sqrt{216}+\sqrt{96}$ be? Give your answer, correct to one decimal place.

A. 24.6

B. 24.5 ✓

C. 23.9

D. 17.7

Q23 Mathematics

The price of rice is increased by 25%. By what percent should a family decrease its consumption so that their expenditure remains the same?

A. 5%

B. 25%

C. 7.5%

D. 20% ✓

Q24 Mathematics

7.98 expressed as a percent of 1.9 is:

A. 42%

B. 420% ✓

C. 4.2%

D. 7%

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Q25 Mathematics

Solve the following:

$11 + 11 \div 11 + 11 \times 11 - 11 = ?$

A. 1

B. $\frac{13}{11}$ - 11

C. 0

D. 122 ✓

Q26 Mathematics

If $\frac{9^m \times 3^5 \times 27^3}{3 \times 81^4} = 3^9$, then the value of m is:

A. 5

B. 7

C. 6 ✓

D. 12

Q27 Mathematics

Simplify: $(1^3 + 2^3 + 3^3 + \cdots + 8^3)^{\frac{-5}{2}}$

A. 10^3

B. 6^{-10} ✓

C. $36^{-7.5}$

D. $8^{-7.5}$

Q28 Mathematics

A sum of money doubles itself at a compound interest in 15 years. In how many years will it become 8 times the original amount?

A. 58 years

B. 45 years ✓

C. 40 years

D. 52 years

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Q29 Mathematics

The speed of a stream is 3 km/h and the speed of a man in still water is 5 km/h. The time taken by the man to swim 26 km downstream is:

A. $4\frac{1}{3}$ hours

B. $4\frac{3}{4}$ hours

C. $1\frac{3}{4}$ hours

D. $3\frac{1}{4}$ hours ✓

Q30 Mathematics

Select the option that will replace the question mark (?) in the given equation.

$$?+\frac{18}{24}+3\frac{3}{4}=23\frac{13}{24}$$

A. 0

B. $19\frac{1}{24}$ ✓

C. 1

D. $19\frac{13}{24}$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The value of a machine depreciates at the rate of 10% per annum. If its present value is ₹1,62,000, what was the value (in ₹) of the machine 2 years ago?

A. 50,000

B. 2,00,000 ✓

C. 1,31,220

D. 54,66,123

Q2 Mathematics

If 111....1 (n digits) is divisible by 9, then the least value of n is:

A. 9 ✓

B. 3

C. 18

D. 12

Q3 Mathematics

If $a^3 + b^3 : a^3 - b^3 = 185 : 158$ then $a : b = ?$

A. 5 : 4

B. 7 : 3 ✓

C. 2 : 3

D. 10 : 2

Q4 Mathematics

Pipe A can fill a tank in 80 min and pipe B can fill the tank in 40 min. If A and B are opened together, then in how many minutes will the tank be filled?

A. $26\frac{1}{3}$

B. $26\frac{2}{3}$ ✓

C. 27

D. 26

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Q5 Mathematics

The least number that should be added to 5474, so that the sum is exactly divisible by 3, 4, 6 and 8 is:

A. 23

B. 24

C. 22 ✓

D. 21

Q6 Mathematics

If $12 : 51 :: x : 17$ then $x = ?$

A. 4 ✓

B. 5

C. 6

D. 7

Q7 Mathematics

If the outer and inner radii of a circular path are 2a and b, then its area is _____ sq. units.

A. $(-4a^2 + b^2)$

B. $\pi(-4a^2 + b^2)$

C. $\pi(4a^2 - b^2)$ ✓

D. $(4a^2 - b^2)$

Q8 Mathematics

$1254 + 125.4 + 12.54 + 1.254 = ?$

A. 1383.194

B. 1393.194 ✓

C. 1383.184

D. 1393.184

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Q9 Mathematics

Mohan is twice as good as Kamlesh and together, they finish a task in 22 days. Mohan alone can finish the task in:

A. 35 days

B. 31 days

C. 33 days ✓

D. 37 days

Q10 Mathematics

If ΔABC and ΔPQR are similar and $\frac{BC}{QR} = \frac{1}{3}$, find $\frac{ar(\Delta PQR)}{ar(\Delta BCA)}$

A. 9 ✓

B. $\frac{1}{3}$

C. 3

D. $\frac{1}{9}$

Q11 Mathematics

If $\sin\theta + \text{cosec}\theta = 2$ then the value of $\sin^8\theta + \text{cosec}^8\theta$ is:

A. 2 ✓

B. 2^8

C. 1

D. 2^4

Q12 Mathematics

If $\frac{3x}{2y} = \frac{48}{72}$ then $\frac{x}{y}$ in its lowest term is:

A. $\frac{4}{9}$ ✓

B. $\frac{5}{9}$

C. $\frac{3}{9}$

D. $\frac{2}{9}$

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Q13 Mathematics

If $\frac{1}{3}A = \frac{1}{4}B = \frac{1}{5}C$, then $A : B : C = ?$

A. $4 : 3 : 5$

B. $\frac{1}{3} : \frac{1}{4} : \frac{1}{5}$

C. $3 : 4 : 5$ ✓

D. $5 : 4 : 3$

Q14 Mathematics

Two partners A and B have started business with the capitals of ₹6,000 and ₹8,000 respectively. If they made profit of ₹5,600 then the share (in ₹) of A is:

A. 3,200

B. 2,800

C. 2,100

D. 2,400 ✓

Q15 Mathematics

The diameter of circle whose perimeter is 8.8 cm is _____. ($\pi = \frac{22}{7}$)

A. 2.8 cm ✓

B. 1.4 cm

C. 5.6 cm

D. 0.28 cm

Q16 Mathematics

In right angle ΔABC, right angled at B, if $\tan A = \sqrt{3}$ then $\sin A \cos C + \cos A \sin C = ?$

A. 1 ✓

B. 2

C. 3

D. 4

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Q17 Mathematics

A, B and C can complete a piece of work in 6, 12 and 24 days respectively. They all together will complete the work in:

A. $3\frac{3}{7}$ days ✓

B. $4\frac{2}{7}$ days

C. $4\frac{3}{7}$ days

D. $5\frac{2}{7}$ days

Q18 Mathematics

What number has to be added to each term of 3: 5 to make the ratio 5: 6?

A. 11

B. 5

C. 6

D. 7 ✓

Q19 Mathematics

If the equations $x^2 + ax + b = 0$ and $x^2 + bx + a = 0$ have a common root, then find the value of $a + b$ (where a is not equal to b)

A. 0

B. 2

C. 1

D. -1 ✓

Q20 Mathematics

If $X = 3^2 \times 2, Y = 2^3 \times 3$ and $Z = 3^2 \times 2^2$ then the L.C.M. of XY, YZ, ZX is:

A. 2582

B. 2482

C. 2592 ✓

D. 2492

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Q21 Mathematics

Find the value of $\sin 15°$.

A. $\frac{\sqrt{3}+1}{2\sqrt{2}}$

B. $\frac{\sqrt{3}-1}{2\sqrt{2}}$ ✓

C. $\frac{\sqrt{3}+1}{\sqrt{2}}$

D. $\frac{\sqrt{3}-1}{\sqrt{2}}$

Q22 Mathematics

$(47)^{25} - 1$ is exactly divisible by:

A. 24

B. 21

C. 23 ✓

D. 19

Q23 Mathematics

Solve the following.

$\frac{0.8\times0.8\times0.8-0.7\times0.7\times0.7}{0.8\times0.8+0.56+0.7\times0.7} = ?$

A. 1.49

B. 1.56

C. 0.1 ✓

D. 1.0

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Q24 Mathematics

Find the value of the expression

$[\text{cosec}(75° + \theta) - \sec(15° - \theta) - \tan(55° + \theta) + \cot(35° - \theta)]$

A. 1

B. 0 ✓

C. -1

D. $\frac{3}{2}$

Q25 Mathematics

A, B and C are partners in a business with a total capital of ₹33,000. The profit at the end of the year is ₹15,000 that is to be divided in proportion to their capitals. A receives ₹4,500 and B receives ₹5,500 as their shares in profit. Find C's capital (in ₹).

A. 14,000

B. 13,000

C. 12,000

D. 11,000 ✓

Q26 Mathematics

Write the ratios 5 : 3, 7 : 5 and 6 : 4 in descending order.

A. $\frac{5}{3} > \frac{6}{4} > \frac{7}{5}$ ✓

B. $\frac{5}{3} > \frac{7}{5} > \frac{6}{4}$

C. $\frac{7}{5} > \frac{6}{4} > \frac{5}{3}$

D. $\frac{6}{4} > \frac{7}{5} > \frac{5}{3}$

Q27 Mathematics

The number whose only factors are 1 and the number itself is called a/an _____ number.

A. composite

B. prime ✓

C. even

D. odd

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Q28 Mathematics

The LCM of $8^2 \times 6^3$ and $4^6 \times 9^3$ is:

A. $2^{12} \times 3^3$

B. $2^9 \times 3^3$

C. $2^{12} \times 3^6$ ✓

D. $2^9 \times 3^6$

Q29 Mathematics

The length of each side of an equilateral triangle is $2\sqrt[4]{3}$ cm. What is the area of this triangle?

A. $4\sqrt{3}$ cm^2

B. 3 cm^2 ✓

C. $2\sqrt{3}$ cm^2

D. 4 cm^2

Q30 Mathematics

If the length of a rectangular solar panel having an area of 110 m^2 is 10% more than its breadth, then what will be the breadth?

A. 10 m ✓

B. $10\sqrt{3}$ m

C. $20\sqrt{3}$ m

D. 110 m

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A shopkeeper sells a chair for ₹639 and incurs a loss of 10%. What is the cost price (in ₹) of the chair?

A. 700

B. 615

C. 600

D. 710 ✓

Q2 Mathematics

What is the product of LCM and HCF of 18 and 42?

A. 746

B. 736

C. 756 ✓

D. 766

Q3 Mathematics

Ram bought a cycle for ₹1,900 and sold it for ₹1,862. What was the percentage loss?

A. 6%

B. 4%

C. 8%

D. 2% ✓

Q4 Mathematics

Which of the following fractions is greater than $\frac{8}{5}$ and less than $\frac{7}{4}$?

A. $\frac{2}{7}$

B. $\frac{8}{3}$

C. $\frac{19}{11}$ ✓

D. $\frac{1}{4}$

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Q5 Mathematics

If $\cot x = 3$, then what will be the value of $\frac{(3 + 3\sin x)(1 - \sin x)}{(2 + 2\cos x)(3 - 3\cos x)}$?

A. 9

B. $\frac{9}{2}$ ✓

C. $\frac{9}{3}$

D. $\frac{9}{4}$

Q6 Mathematics

If a man travels at a speed of 15 km/h instead of travelling at a speed of 9 km/h, he travels 30 km more. The actual distance travelled by him is:

A. 45 km ✓

B. 43 km

C. 42 km

D. 41 km

Q7 Mathematics

If 0.75 : x :: 2.5 : 8, then the value of x will be equal to:

A. 1.5

B. 0.42

C. 0.50

D. 2.4 ✓

Q8 Mathematics

If radius of a sphere is 21 cm, what will be its volume?

A. 3500 cm^3

B. 3800 cm^3

C. 37050 cm^3

D. 38808 cm^3 ✓

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Q9 Mathematics

The value of $4\cos\left(\frac{\pi}{6}-\alpha\right)\sin\left(\frac{\pi}{3}-\alpha\right)$ is equal to:

A. $3+\sin^2\alpha$

B. $3+4\sin^2\alpha$

C. $3-\sin^2\alpha$

D. $3-4\sin^2\alpha$ ✓

Q10 Mathematics

Excluding stoppage station, the speed of a train is 60 km/h and including stoppage station it travels at a speed of 45 km/h. For how many minutes does the train stop per hour?

A. 30 min

B. 10 min

C. 20 min

D. 15 min ✓

Q11 Mathematics

What is the value of the following expression?

$$\frac{(2.7)^2-(0.8)^2}{2.7-0.8}$$

A. 0

B. 7.0

C. 3.5 ✓

D. 2.5

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Q12 Mathematics

The value of $\cos 75° + \sin 15°$ is equal to:

A. $\frac{\sqrt{3} - 1}{\sqrt{2}}$ ✓

B. $\frac{\sqrt{3}}{\sqrt{2}}$

C. $\frac{\sqrt{2}}{\sqrt{3}}$

D. $\frac{\sqrt{3} + 1}{\sqrt{2}}$

Q13 Mathematics

If $\theta = 45°$, then what will be the value of $\frac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta}$?

A. 1

B. ∞ ✓

C. -1

D. 0

Q14 Mathematics

Dividing ₹742 into two parts in the ratio of 5 : 9 will give the two parts as:

A. ₹265, ₹477 ✓

B. ₹260, ₹482

C. ₹290, ₹452

D. ₹275, ₹467

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Q15 Mathematics

Which of the following options is equivalent to $\frac{(x^3-y^3)(x^2+5x+6)(x^4-16)}{(x-y)(x+3)(x-2)(x^2+4)}$?

A. (x^2+y^2-xy)

B. $(x^2+y^2-xy)(x+2)^2$

C. $(x+2)^2$

D. $(x^2+y^2+xy)(x+2)^2$ ✓

Q16 Mathematics

The value of $\left(\frac{32}{5}\right) \times 92 + \left(\frac{3}{5}\right) \times 2$ is:

A. 401

B. 590 ✓

C. 812

D. 502

Q17 Mathematics

A can complete a task in the same time in which B and C together can complete it. If A and B together can complete it in 10 days and C alone can complete it in 60 days, then B alone can complete it in:

A. 22 days

B. 23 days

C. 21 days

D. 24 days ✓

Q18 Mathematics

What will be the cost (in ₹) of 15.2 kg of rice if the cost of 1 kg rice is ₹45?

A. 684 ✓

B. 325

C. 615

D. 425

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Q19 Mathematics

In a triangle, right angled at B, AB = 12 cm and BC = 5 cm. What will be the value of

i) sinAcosA

ii) sinCcosC respectively?

A. $\frac{26}{169}, \frac{25}{169}$

B. $\frac{25}{169}, \frac{60}{169}$

C. $\frac{60}{169}, \frac{60}{169}$ ✓

D. $\frac{60}{169}, \frac{25}{169}$

Q20 Mathematics

What will be the area of a parallelogram with base 44 cm and height 22 cm?

A. 968 cm^2 ✓

B. 988 cm^2

C. 958 cm^2

D. 978 cm^2

Q21 Mathematics

If LCM and HCF of two numbers are 70 and 7 respectively and if one number is 35, then what will be the second number?

A. 40

B. 25

C. 49

D. 14 ✓

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Q22 Mathematics

What is the value of the following expression?

$$\frac{1 + \sec\theta + \tan\theta}{1 + \sec\theta - \tan\theta}$$

A. $\frac{1 - \tan\frac{\theta}{2}}{\tan\frac{\theta}{2}}$

B. $\frac{1 - \tan\frac{\theta}{2}}{1 + \tan\frac{\theta}{2}}$

C. $\frac{1 + \tan\frac{\theta}{2}}{1 - \tan\frac{\theta}{2}}$ ✓

D. $\frac{1 + \tan\frac{\theta}{2}}{\tan\frac{\theta}{2}}$

Q23 Mathematics

The L.C.M. of any two consecutive positive integers x and x+1 is:

A. x

B. (x) (x+1) ✓

C. 1

D. x+1

Q24 Mathematics

If the length and the breadth of a rectangle are in the ratio of 7 : 4 and its area is 12348 cm^2, what will be the length of the rectangle?

A. 105 cm

B. 147 cm ✓

C. 120 cm

D. 84 cm

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Q25 Mathematics

What is the value of the following expression?

$$\frac{\sqrt{7}-\sqrt{3}}{\sqrt{7}+\sqrt{3}}+\frac{\sqrt{7}+\sqrt{3}}{\sqrt{7}-\sqrt{3}}+\frac{\sqrt{3}+1}{\sqrt{3}-1}+\frac{\sqrt{3}-1}{\sqrt{3}+1}$$

A. 1

B. 9 ✓

C. $\frac{1}{2}$

D. 0

Q26 Mathematics

A and B have together ₹2,300. If $\frac{2}{5}$ of A's amount is equal to $\frac{8}{26}$ of B's amount, what amount (in ₹) does B have?

A. 1,200

B. 1,000

C. 1,300 ✓

D. 1,150

Q27 Mathematics

If A is 80% more than B and B is 20% less than C, then what will be the value of A : B : C?

A. 36 : 20 : 25 ✓

B. 36 : 5 : 20

C. 20 : 25 : 36

D. 36 : 25 : 20

Q28 Mathematics

Seats for Mathematics, Physics and Chemistry in a school are in the ratio of 7 : 8 : 9. There is a proposal to increase the seats by 30%, 40% and 50% respectively. What will be the ratio of increased seats?

A. 91 : 112 : 135 ✓

B. 35 : 37 : 91

C. 112 : 91 : 135

D. 135 : 112 : 91

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Q29 Mathematics

The value of $80.6 \div 4030 = ?$

A. 0.2

B. 2

C. 0.02 ✓

D. 20

Q30 Mathematics

Which of the following is the greatest three digit number that is divisible by 13?

A. 908

B. 990

C. 988 ✓

D. 575

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The HCF and LCM of two numbers are 6 and 36 respectively. If one of the number is 12, then the other number is:

A. 36
B. 16
C. 14
D. 18 ✓

Q2 Mathematics

A rainfall of 0.896 cm was recorded in 7 h. What was the average amount of rain per hour?

A. 0.128 cm ✓
B. 0.112 cm
C. 0.182 cm
D. 0.218 cm

Q3 Mathematics

A man completes a journey in 10 hours. He travels the first half of the journey at the rate of 20 km/h and the second half at the rate of 30 km/h. Find the total journey he travelled in kilometres?

A. 320 km
B. 240 km ✓
C. 200 km
D. 300 km

Q4 Mathematics

A, B and C can complete a piece of work in 10 days, 15 days and 20 days respectively. If they work together, then the work will be completed in:

A. $4\frac{8}{13}$ days ✓
B. $4\frac{7}{13}$ days
C. $4\frac{9}{13}$ days
D. $4\frac{6}{13}$ days

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Q5 Mathematics

Find the equation of the tangents to the circle $x^2 + y^2 = 9$ at $x = 2$.

A. $-2x + \sqrt{5}y = 9$
$2x - \sqrt{5}y = 9$

B. $-2x - \sqrt{5}y = 9$
$2x - \sqrt{5}y = 9$

C. $-2x + \sqrt{5}y = 9$
$-2x - \sqrt{5}y = 9$

D. $2x + \sqrt{5}y = 9$
$2x - \sqrt{5}y = 9$ ✓

Q6 Mathematics

The area of a circular park is 1386 m^2. If a path of the width 7 m is laid around and inside the park. Then the area of the path is:

A. 780 m^2

B. 760 m^2

C. 790 m^2

D. 770 m^2 ✓

Q7 Mathematics

If the degree of polynomial $9x^5y^2z^r$ is 15, then $r =$?

A. 8 ✓

B. 6

C. 7

D. 9

Q8 Mathematics

The sum of the place values of 9 in 96961 is:

A. 9000

B. 18

C. 90900 ✓

D. 9090

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Q9 Mathematics

Ramu and Ravi met in the market on 5^{th} of a month. Ramu goes to the market every 4^{th} day and Ravi goes every 5^{th} day. On what day of the month will they meet again?

A. 14^{th} day

B. 10^{th} day

C. 25^{th} day ✓

D. 20^{th} day

Q10 Mathematics

A and B start a business by investing ₹1, 00, 000 and ₹1,50, 000 respectively. Find the respective share of each out of a total profit of ₹24, 000.

A. ₹9300 and ₹14,100

B. ₹9500 and ₹14,200

C. ₹9400 and ₹14,000

D. ₹9600 and ₹14,400 ✓

Q11 Mathematics

Bananas are bought at the rate of 3 for ₹2 and sold at the rate of 2 for ₹3. Find the percentage gain.

A. 105%

B. 125% ✓

C. 115%

D. 135%

Q12 Mathematics

For a room, if length and breadth are given by L= $(3x + 10)$ m and $B = (2x + 5)$ m and the area of 4 of its walls together is $(60x + 180)$ sq units, then the height of the room is:

A. 5 m

B. 8 m

C. 9 m

D. 6 m ✓

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Q13 Mathematics

If $\tan\theta = x - \frac{1}{4x}$, then $\sec\theta - \tan\theta$ is equal to:

A. $-2x$ or $\frac{1}{2x}$ ✓

B. $2x$ or $\frac{1}{2x}$

C. $-2x$ or $-\frac{1}{2x}$

D. $2x$ or $-\frac{1}{2x}$

Q14 Mathematics

A vendor bought bananas at the rate of 6 for ₹10 and sold them at the rate of 4 for ₹6. What is the percentage gain or loss?

A. 10% ✓

B. 30%

C. 90%

D. 20%

Q15 Mathematics

In ΔABC, $\angle A : \angle B : \angle C = 2 : 3 : 5$, then find the measure of the supplementary angle of $\angle A$.

A. 144° ✓

B. 54°

C. 154°

D. 36°

Q16 Mathematics

A can complete a task in 40 days. If A and B can complete it together in 30 days, then in how many days can B alone complete the task?

A. 125 days

B. 150 days

C. 100 days

D. 120 days ✓

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Q17 Mathematics

A container contains 80 litres of milk. From this container, 8 litres of milk is taken out and replaced by water. 8 litres of this mixture is now taken out and again replaced with water. This process is repeated once more. How much milk content in the Mixture now?

A. 50.42 litres

B. 48.32 litres

C. 58.32 litres ✓

D. 52.12 litres

Q18 Mathematics

If $\sqrt{15} = 3.88$, then $\sqrt{\frac{5}{3}} = ?$

A. $4.29\overline{3}$

B. $3.29\overline{3}$

C. $2.29\overline{3}$

D. $1.29\overline{3}$ ✓

Q19 Mathematics

If $\sin A = \frac{1}{2}$ and $\cos B = \frac{1}{2}$ then find $A + B$.

A. 30°

B. 75°

C. 90° ✓

D. 60°

Q20 Mathematics

The median of the data in ascending order 7, 11, 12, (x-y), (x+y), 20, 21, 29 is 16. Find the value of x.

A. 16 ✓

B. 14

C. 12

D. 15

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Q21 Mathematics

The LCM of two numbers is the 20^{th} multiple of 3. If their HCF is 6 and one of the number is 12, then the second number is:

A. 30 ✓

B. 24

C. 56

D. 42

Q22 Mathematics

If a : b = 3 : 4 and b : c = 5 : 7, then a : c = ?

A. 28 : 15

B. 15 : 28 ✓

C. 10 : 28

D. 28 : 10

Q23 Mathematics

Find the value of $\sqrt{2025}$.

A. 45 ✓

B. 65

C. 25

D. 55

Q24 Mathematics

What is the least possible number which must be subtracted from 16, 19 and 23, so that the resulting numbers are in continued proportion?

A. 8

B. 9

C. 7 ✓

D. 1

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Q25 Mathematics

50% of a number is 21 less than $\frac{4}{5}$ th of that number. Find the number.

A. 60

B. 70 ✓

C. 50

D. 40

Q26 Mathematics

What is the average of 4.2, 3.8 and 7.6?

A. 2.2

B. 1.2

C. 5.2 ✓

D. 4.2

Q27 Mathematics

The value of

$$\frac{\left(-\frac{1}{2}\right)^5}{\left(-\frac{1}{2}\right)^4} + \frac{\left(-\frac{1}{8}\right)}{\left(-\frac{1}{4}\right)} \text{ is}$$

A. 0 ✓

B. 1

C. 3

D. 2

Q28 Mathematics

Find the difference between the median and the mean of the following data:

12, 20, 3, 14, 5, 8 and 15

A. 3

B. 2

C. 1 ✓

D. 4

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Q29 Mathematics

Find the greatest number of five digits which is exactly divisibly by 6, 8, 12, 15 and 20.

A. 99980

B. 99920

C. 99960 ✓

D. 99999

Q30 Mathematics

Which one of the following does NOT belong to the given set?

$$\left\{\frac{3}{6}, \frac{5}{10}, \frac{9}{18}, \ldots\ldots\ldots\right\}$$

A. $\frac{62}{124}$

B. $\frac{19}{38}$

C. $\frac{13}{26}$

D. $\frac{42}{86}$ ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The mean of the first ten odd natural numbers is:

A. 9

B. 8

C. 11

D. 10 ✓

Q2 Mathematics

The median of 4, 4, 5, 7, 6, 7, 7, 12, 3 is:

A. 4

B. 7

C. 5

D. 6 ✓

Q3 Mathematics

If the diagonal of a cube is $10\sqrt{3}$ cm long, then what is its volume?

A. $800\ cm^3$

B. $1000\ cm^3$ ✓

C. $9000\ cm^3$

D. $500\ cm^3$

Q4 Mathematics

Rani buys toys at 6 for a rupee and sells them at 3 for a rupee. Her profit is:

A. 20%

B. 50%

C. 150%

D. 100% ✓

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Q5 Mathematics

If $A : B = 2 : 3$ and $B : C = 4 : 5$, then what is $C : A$?

A. $8 : 5$

B. $5 : 8$

C. $5 : 18$

D. $15 : 8$ ✓

Q6 Mathematics

In selling 33 m cloth, Rani's profit is equal to the selling price of 11 m cloth, then what is her gain percent?

A. 20 % gain

B. 50% gain ✓

C. 60 % gain

D. 30 % gain

Q7 Mathematics

$(\sqrt{2} - \sqrt{3})^2$ is:

A. a whole number

B. a rational number

C. an irrational number ✓

D. a natural number

Q8 Mathematics

The mean of 100 observations is 50. If one observation 50 is replaced by 150, then what will be the new mean?

A. 52

B. 51 ✓

C. 50.5

D. 49.5

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Q9 Mathematics

Find the value of $\left(\sqrt{1.69} + \sqrt{0.49}\right) \times \sqrt{400}$:

A. 20

B. 22

C. 20.2

D. 40 ✓

Q10 Mathematics

A train 800 m long is travelling at a speed of 120 km/h. How much time will it take to cross a bridge 1200 m long?

A. 2 min

B. 3 min

C. 1 min ✓

D. 4 min

Q11 Mathematics

A tank has two inlets A and B which can fill it in 12 hours and 16 hours respectively. An outlet C can empty the full tank in 8 hours. If all three pipes are opened together when the tank is empty, then how much time will it take to fill the tank?

A. 20 hours

B. 40 hours

C. 36 hours

D. 48 hours ✓

Q12 Mathematics

If the radii of two cylinders are in ratio 2 : 3 and their respective heights are in ratio 5 : 3 then what is the ratio of their volumes?

A. 10 : 17

B. 17 : 27

C. 20 : 27 ✓

D. 20 : 37

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Q13 Mathematics

If $\tan 2\theta = \cot(\theta + 6°)$ then θ *is* :

A. $12°$

B. $45°$

C. $28°$ ✓

D. $24°$

Q14 Mathematics

The value of $\sqrt{8} + \sqrt{18}$ is:

A. $\sqrt{26}$

B. 12

C. $5\sqrt{2}$ ✓

D. $2(\sqrt{2} + \sqrt{3})$

Q15 Mathematics

A terminating decimal is always:

A. an integer

B. a whole number

C. a rational number ✓

D. a natural number

Q16 Mathematics

The number of rational numbers between 5 and 7 is:

A. 1

B. infinite ✓

C. 0

D. 2

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Q17 Mathematics

The product of $4\sqrt{6}$ and $3\sqrt{24}$ is:

A. a negative number

B. a prime number

C. a rational number ✓

D. an irrational number

Q18 Mathematics

Which of the following has terminating decimal representation?

A. $4\frac{1}{9}$

B. $3\frac{1}{7}$

C. $2\frac{1}{3}$

D. $1\frac{1}{5}$ ✓

Q19 Mathematics

The value of $1 - \sin 35° \cos 55°$ is equal to:

A. $\text{Cosec}^2 55°$

B. $\text{Sin}^2 35°$

C. $\text{Cos}^2 35°$ ✓

D. $\text{Sec}^2 55°$

Q20 Mathematics

A sells a radio to B at a gain of 10% and B sells it to C at a gain of 5%. If C pays ₹462 for it, then what did it cost A?

A. ₹400 ✓

B. ₹390

C. ₹410

D. ₹420

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Q21 Mathematics

The value of $4x^4 + 9y^2 - 12x^2y$ at $x = 5$ and $y = 2$ is:

A. 1936 ✓

B. 1660

C. 2500

D. 2536

Q22 Mathematics

The mean of 25 observations is 36. If the mean of its first 13 observations is 32 and the last 13 observations is 40, then what will be its 13^{th} observation?

A. 38

B. 36 ✓

C. 23

D. 40

Q23 Mathematics

If $x = \sqrt{3} + \sqrt{2}$, then the value of $x^2 + \frac{1}{x^2}$ is:

A. 12

B. 14

C. $2\sqrt{3}$

D. 10 ✓

Q24 Mathematics

A can finish a piece of work in 25 days and B can finish it in 20 days. They work together for 5 days and then A leaves. In how many days will B finish the remaining work?

A. 15 days

B. 12 days

C. 11 days ✓

D. 16 days

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Q25 Mathematics

If a painting was sold for ₹5,225 after a discount of 5%, then what is the marked price of the painting?

A. ₹5,575

B. ₹5,200

C. ₹5,500 ✓

D. ₹5,550

Q26 Mathematics

$(\sqrt{2}+\sqrt{3})(\sqrt{2}-\sqrt{3})$ is equal to:

A. 2

B. -3

C. -1 ✓

D. 3

Q27 Mathematics

Which of the following is NOT a quadratic equation?

A. $(x+2)^2 = 2x(x+1)$

B. $x^2+3x+1 = (x-2)^2$ ✓

C. $m(2m+3) = m^2+1$

D. $(x+1)^2 = 2(x-3)$

Q28 Mathematics

The decimal expansion of $\frac{31}{2.5}$ will terminate after:

A. two decimal places

B. one decimal place ✓

C. more than three decimal places

D. three decimal places

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Q29 Mathematics

If the cost price of 15 shirts is equal to the selling price of 10 shirts, then what will be the gain or loss percent?

A. 50% gain ✓

B. $33\frac{1}{3}\%$ gain

C. 50% loss

D. $33\frac{1}{3}\%$ loss

Q30 Mathematics

A map of a city is drawn on a scale of $1 : 50000$. The distance between two cities A and B on this map is 12 cm. What will be the actual distance between the two cities?

A. 15 km

B. 12 km

C. 6 km ✓

D. 9 km

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Rakhi scored 12 marks more than Mohan. If Rakhi scored 54% marks out of a maximum of 200, how much did Mohan score?

A. 46 marks

B. 69 marks

C. 34 marks

D. 96 marks ✓

Q2 Mathematics

What will be the volume of a cube whose total surface area is 1944 cm^2?

A. 729 cm^3

B. 972 cm^3

C. 5832 cm^3 ✓

D. 3888 cm^3

Q3 Mathematics

If the amount in a bill is decreased by 10%, then ₹279 is to be paid. How much is the original bill?

A. ₹280

B. ₹330

C. ₹300

D. ₹310 ✓

Q4 Mathematics

What will be the area of the ring-shaped region enclosed between two concentric circles of radii 14 cm and 7cm?

A. 98 cm^2

B. 147 cm^2

C. 462 cm^2 ✓

D. 245 cm^2

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Q5 Mathematics

If $A + B = 90°$ and $\sin A = \frac{3}{5}$, then the value of tan B is:

A. $\frac{5}{4}$

B. $\frac{3}{5}$

C. $\frac{5}{3}$

D. $\frac{4}{3}$ ✓

Q6 Mathematics

$0.\overline{23}$ is:

A. a prime number

B. a composite number

C. a rational number ✓

D. an irrational number

Q7 Mathematics

The value of $16x^4 + 25y^2 - 40x^2y$ at $x = 5$ and $y = 2$ is:

A. 12100

B. 8100 ✓

C. 10000

D. 9000

Q8 Mathematics

A map of a city is drawn on a scale of 1:150000. The distance between two cities, A and B, on this map is 6 cm. What will be the actual distance between the two cities?

A. 12 km

B. 6 km

C. 9 km ✓

D. 15 km

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Q9 Mathematics

A physical education teacher has to distribute 96 bats and 180 balls among a number of players, such that all players get the same number of bats and, likewise, all players get the same number of balls. What will be the greatest number of players receiving the gift?

A. 4

B. 12 ✓

C. 6

D. 16

Q10 Mathematics

A tank has two inlets, A and B, which can fill it in 15 hours and 20 hours, respectively. An outlet C can empty the full tank in 12 hours. If A, B and C are opened together when the tank is empty, then in how much time will the tank be filled?

A. 35 hours

B. 30 hours ✓

C. 40 hours

D. 27 hours

Q11 Mathematics

A number is first decreased by 5% and then increased by 5%. What will be the net increase or decrease?

A. 0.25% decrease ✓

B. No increase or decrease

C. 25% decrease

D. 0.25% increase

Q12 Mathematics

In how many years will a sum of ₹1,600 amount to ₹2,116 at 15% compound interest?

A. 1

B. 4

C. 2 ✓

D. 3

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Q13 Mathematics

The mean of $m + 3$, $m + 5$, $m + 6$, $m + 9$ and $m + 12$ is:

A. $m + 6$

B. $m + 3$

C. $m + 7$ ✓

D. $m + 9$

Q14 Mathematics

If the HCF of 51 and 85 is expressed in the form of $51m - 85$, then the value of m will be:

A. 1

B. 5

C. 3

D. 2 ✓

Q15 Mathematics

The product of $\sqrt{2}$ and $\sqrt{3}$ is:

A. a rational number

B. sometimes a rational number and sometimes an irrational number

C. equal to 4

D. an irrational number ✓

Q16 Mathematics

A and B can finish a work in 9 days, B and C can finish it in 12 days and A and C can finish it in 18 days. In how many days can A, B and C finish the work together?

A. 8 ✓

B. 7

C. 6

D. 9

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Q17 Mathematics

$(\sqrt{3}+\sqrt{11})^2$ is a/an:

- A. irrational number ✓
- B. natural number
- C. rational number
- D. whole number

Q18 Mathematics

The largest four-digit number that is exactly divisible by 83 is:

- A. 9936
- B. 9960 ✓
- C. 9966
- D. 9954

Q19 Mathematics

If mean = (3 median − mode)/p, then the value of p is:

- A. $\frac{1}{3}$
- B. 2 ✓
- C. $\frac{1}{2}$
- D. 1

Q20 Mathematics

Four options have been given, out of which three are alike in some manner and one is different. Select the option that is different from the rest.

- A. $\sqrt{3}$
- B. 0.120120012000.....
- C. π
- D. $0.\overline{45}$ ✓

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Q21 Mathematics

If the cost price of 10 shirts is equal to the selling price of 8 shirts, then what will be the percentage gain or loss?

A. 25% loss

B. 20% gain

C. 25% gain ✓

D. 20% loss

Q22 Mathematics

$(\sqrt{7}+\sqrt{9})(\sqrt{7}-\sqrt{9})$ is equal to:

A. 16

B. -63

C. -2 ✓

D. 2

Q23 Mathematics

$1+\tan 15^\circ \cot 75^\circ$ is equal to:

A. $\sec^2 15^\circ$ ✓

B. $\operatorname{cosec}^2 15^\circ$

C. $\cos^2 15^\circ$

D. $\sin^2 15^\circ$

Q24 Mathematics

The mean of the first eight odd natural numbers is:

A. 9

B. 11

C. 8 ✓

D. 10

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Q25 Mathematics

The decimal expression of $\frac{3}{8}$ comes to an end after how many digits after the decimal?

A. 3 ✓

B. 2

C. 4

D. 5

Q26 Mathematics

Which of the following is NOT a quadratic equation?

A. $x(x+1)+8=(x+2)(x-2)$ ✓

B. $m(2m+3)=m^2+1$

C. $(y-2)^2+1=2y-3$

D. $(m-2)^3=m^3-4$

Q27 Mathematics

A 400-m-long train is travelling at a speed of 60 km/h. How much time will it take to cross a 600-m-long bridge?

A. 1 min ✓

B. 2 min

C. 3 min

D. 4 min

Q28 Mathematics

What is the third proportional to 16 and 40?

A. 640

B. 40

C. 10

D. 100 ✓

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Q29 Mathematics

Which of the following is a rational number between $\sqrt{5}$ and $\sqrt{7}$?

A. $2\frac{2}{5}$ ✓

B. $1\frac{1}{5}$

C. $3\frac{1}{5}$

D. $4\frac{1}{5}$

Q30 Mathematics

The average weight of an apple in a sample of 10 apples was calculated as 104 g. Later on, it was found that the weighing had shown the weight of each apple 20 g less. The correct average weight of an apple in that sample is:

A. 200 g

B. 1240 g

C. 84 g

D. 124 g ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A dealer lists his goods at 40% above cost price and allows a discount of 20%. His profit is:

A. 10%

B. 20%

C. 40%

D. 12% ✓

Q2 Mathematics

The mean of the first ten even natural numbers is:

A. 10

B. 8

C. 11 ✓

D. 9

Q3 Mathematics

A photograph of a bacteria enlarged 60000 times attains a length of 6 cm. The actual length of bacteria is:

A. $\frac{1}{100}$ cm

B. $\frac{1}{10000}$ cm ✓

C. 1000 cm

D. $\frac{1}{1000}$ cm

Q4 Mathematics

The mean of the first twelve prime numbers is:

A. 16.42 ✓

B. 12.00

C. 20.45

D. 10.50

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Q5 Mathematics

Which of the following pairs of numbers is co-prime?

A. 6 and 35 ✓

B. 9 and 12

C. 39 and 65

D. 14 and 21

Q6 Mathematics

Solve the following.

$(\sqrt{3}-\sqrt{2})\times(\sqrt{3}+\sqrt{2})=?$

A. 2

B. 3

C. $(\sqrt{3}+\sqrt{2})$

D. 1 ✓

Q7 Mathematics

Two boxes, A and B, have the capacity of holding 85 and 68 units of an article respectively. However, these articles have to be first packed into uniformly sized smaller packets that fit into the boxes. What is the maximum number of units that should be put into each of these packets such that both boxes A and B are filled to their full capacity?

A. 68 units per packet

B. 1445 units per packet

C. 17 units per packet ✓

D. 85 units per packet

Q8 Mathematics

The value of

$\tan 5^\circ \tan 25^\circ \tan 45^\circ \tan 65^\circ \tan 85^\circ$ is equal to:

A. 1 ✓

B. 4

C. 2

D. 3

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Q9 Mathematics

The decimal expansion of $\frac{27}{25}$ will terminate after:

A. three decimal places

B. one decimal place

C. two decimal places ✓

D. more than three decimal places

Q10 Mathematics

If $\sin 3\theta = \cos(\theta - 6°)$, then θ is:

A. $24°$ ✓

B. $26°$

C. $12°$

D. $3°$

Q11 Mathematics

Find the value of:

$(0.63 \div 1.26) \times 4 + 5 \times 3$

A. 16

B. 17 ✓

C. 15

D. 18

Q12 Mathematics

A ratio of the cost price and the selling price of an article is $4 : 5$. What is the percentage gain or loss?

A. 20% gain

B. 20% loss

C. 25% loss

D. 25% gain ✓

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Q13 Mathematics

Median of 14, 14, 15, 17, 16, 17, 17, 22, 13 is:

A. 16 ✓

B. 15

C. 17

D. 14

Q14 Mathematics

Rationalising factor of $\sqrt[3]{40}$ is:

A. $10^{\frac{1}{3}}$

B. $5^{\frac{2}{3}}$ ✓

C. $40^{\frac{1}{3}}$

D. $2^{\frac{2}{3}}$

Q15 Mathematics

If an article is sold at a gain of 5% instead of being sold at a loss of 5%, a man gets ₹5 more. What is the cost price of the article?

A. ₹80

B. ₹40

C. ₹60

D. ₹50 ✓

Q16 Mathematics

The ratio of the area of a circle and that of an equilateral triangle, where the diameter of the circle is equal to the sides of the equilateral tringle, is:

A. $\pi : \sqrt{2}$

B. $\pi : \sqrt{3}$ ✓

C. $\pi : 1$

D. $\sqrt{3} : \pi$

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Q17 Mathematics

$\sqrt{2} - \sqrt{3}$ is :

A. a whole number

B. an irrational number ✓

C. a natural number

D. a rational number

Q18 Mathematics

20 years ago, the average age of a husband and his wife was 23 years. Now, the average age of the family consisting of the husband, wife and their son is 34 years. The present age of the son is:

A. 34 years

B. 16 years ✓

C. 24 years

D. 42 years

Q19 Mathematics

A number exceeds 25% of itself by 60. the number is:

A. 65

B. 80 ✓

C. 45

D. 75

Q20 Mathematics

The radius of a semicircular compound is 35 m. What will be its circumference?

A. 45 m

B. 180 m ✓

C. 135 m

D. 90 m

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Q21 Mathematics

The quadratic equation whose one root is $3 + \sqrt{5}$, is:

A. $x^2 - 6x - 4 = 0$

B. $x^2 - 6x + 4 = 0$ ✓

C. $x^2 + 6x + 4 = 0$

D. $x^2 + 6x - 4 = 0$

Q22 Mathematics

The HCF of 24 and 144 is '10p + 4', then the value of 'p' is:

A. 1

B. 4

C. 2 ✓

D. 3

Q23 Mathematics

A tank has two inlets A and B that can fill it in 5 h and 6 h respectively. An outlet C can empty the full tank in 30 h. If all the three pipes are opened together in the empty tank, how much time will the pipes take to fill the tank?

A. 5 h

B. 4 h

C. 2 h

D. 3 h ✓

Q24 Mathematics

The HCF of the least prime number and the least composite natural number is:

A. 4

B. 2 ✓

C. 1

D. 3

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Q25 Mathematics

A 600 m long train is running at the speed of 72 km/h. How much time will it take to cross a 200 m long bridge?

A. 10 s

B. 30 s

C. 20 s

D. 40 s ✓

Q26 Mathematics

In the expansion of $(x + 3)^3$, the coefficient of x is:

A. 9

B. 1

C. 18

D. 27 ✓

Q27 Mathematics

What will be the compound interest on ₹25,000 at the rate of 6% per annum in 2 years?

A. ₹2,560

B. ₹3,090 ✓

C. ₹1,560

D. ₹1,950

Q28 Mathematics

If $x + \frac{1}{x} = 6$, then value of $x^2 + \frac{1}{x^2}$ is:

A. 36

B. 12

C. 38

D. 34 ✓

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Q29 Mathematics

A can finish a piece of work in 20 days and B can finish it in 24 days. They work together for 10 days then A leaves. In how many days will B finish the remaining work?

A. 1 day

B. Half day

C. 3 days

D. 2 days ✓

Q30 Mathematics

x% of y is y% of:

A. x ✓

B. $\frac{y}{10}$

C. $\frac{x}{10}$

D. 100x

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

What is the sum of the following two series?

$(8 + 27 + 64 + \ldots + 1000) + (2 + 4 + 6 + \ldots + 20) = ?$

A. 3133

B. 3134 ✓

C. 3135

D. 3136

Q2 Mathematics

Which of the following is a prime number?

A. 157 ✓

B. 121

C. 1331

D. 81

Q3 Mathematics

If A, B and C can complete a task alone in 15 days, 20 days and 25 days, respectively, then in how many days can they complete the same task if they work together?

A. $\frac{300}{47}$ ✓

B. $\frac{150}{47}$

C. $\frac{225}{47}$

D. $\frac{75}{47}$

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Q4 Mathematics

What is the number of all positive solutions of the equation $|x \times 1| = 0$?

A. 3

B. 1

C. 0 ✓

D. 2

Q5 Mathematics

In a triangle, if angle $A = 30°$ and angle $B = 45°$, then what is the angle of C?

A. 105° ✓

B. 150°

C. 180°

D. 75°

Q6 Mathematics

Vikas took a loan of ₹1,200 on simple interest that is equal to as many years as the rate of interest. If he paid ₹768 as interest at the end of the loan period, then what was the rate of interest?

A. 8.5%

B. 7.8%

C. 7.5%

D. 8.0% ✓

Q7 Mathematics

If a : b = 7 : 9 and b : c = 1 : 12, then a : b : c is:

A. 7 : 9 : 108 ✓

B. 7 : 9 : 8

C. 7 : 8 : 9

D. 7 : 9 : 12

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Q8 Mathematics

The angle of elevation of a ladder leaning against a wall is 45°. The foot of the ladder is $4\sqrt{2}$ metres away from wall. The length of the ladder is:

A. 7 m

B. 5 m

C. 6 m

D. 8 m ✓

Q9 Mathematics

If $\frac{A}{4} = \frac{B}{5} = \frac{C}{6}$, then A : B : C is:

A. 4 : 5 : 6 ✓

B. 5 : 6 : 4

C. 4 : 6 : 5

D. 4 : 8 : 9

Q10 Mathematics

The ratio of the volumes of two cubes is 64 : 1331. What is the ratio of their total surface areas?

A. 16 : 121 ✓

B. 121 : 16

C. 16 : 4

D. 4 : 121

Q11 Mathematics

If $\tan A = \frac{3}{4}$, then the value of $\frac{\cos A - \sin A}{\cos A + \sin A}$ is:

A. $\frac{1}{4}$

B. $\frac{1}{8}$

C. $\frac{1}{7}$ ✓

D. $\frac{1}{3}$

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Q12 Mathematics

What is the value of $\sqrt{\frac{1.21 \times 0.9}{1.1 \times 0.11}}$?

A. 12

B. 3 ✓

C. 6

D. 9

Q13 Mathematics

What is the LCM of $\sqrt[2]{169}$, $\sqrt[3]{27}$, $\sqrt[3]{64}$ and $\sqrt[2]{144}$?

A. 468

B. 156 ✓

C. 312

D. 182

Q14 Mathematics

What is the area of a rhombus, whose sides are 25 cm and one of the diagonals is 14 cm?

A. 330 cm^2

B. 310 cm^2

C. 336 cm^2 ✓

D. 300 cm^2

Q15 Mathematics

If a train runs at an average speed of 42 km/h, then it covers a certain distance in 45 min. What is the speed at which the train must run to reduce the time of the same journey to 35 min?

A. 49 km/h

B. 54 km/h ✓

C. 52 km/h

D. 52.5 km/h

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Q16 Mathematics

There are 40 persons in a palace. If every person shakes hands with every other person, what will be the total number of handshakes?

A. 780 ✓

B. 750

C. 790

D. 800

Q17 Mathematics

A sum of money amounts to ₹12,000 after 6 years and ₹15,000 after 9 years at the same rate of simple interest. What is the rate of interest per annum?

A. $16\frac{1}{3}\%$

B. 16%

C. $16\frac{2}{3}\%$ ✓

D. $18\frac{2}{3}\%$

Q18 Mathematics

What is the value of $\sin(48° + \theta) - \cos(42° - \theta)$?

A. -1

B. 1

C. 2

D. 0 ✓

Q19 Mathematics

A sector of a circle has a radius of 18 cm and a central angle of $125°$. What will be its approximate perimeter? (Use $\pi = \frac{22}{7}$)

A. 74 cm

B. 73.85 cm

C. 73 cm

D. 75.3 cm ✓

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Q20 Mathematics

Let a set S = {1, 2, 2, 3, 3, 3, 4, 4, 4, 4}. Then the value of 4 × mean + 2 × mode – 8 × median is:

A. 10

B. 4

C. –4 ✓

D. 14

Q21 Mathematics

What is the value of the following expression?

$$\frac{81}{7} \times \frac{21}{3} - 4\frac{2}{3} \div \frac{7}{9} \times \frac{121}{6}$$

A. – 45

B. – 40 ✓

C. 40

D. 45

Q22 Mathematics

How many years will it take for an amount of ₹400 to yield ₹450 as interest at 5% per annum on simple interest?

A. 23

B. 22

C. 22.5 ✓

D. 21.5

Q23 Mathematics

If $0.75 : x :: 25 : 8$, then what is the value of x?

A. 24

B. 2.34375

C. $\frac{25}{6}$

D. $\frac{6}{25}$ ✓

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Q24 Mathematics

What is the value of x, if $-3 \times \sqrt{196} + \sqrt{x} = 8 \times 3 - 2$?

A. 4096 ✓

B. 128

C. 135

D. 1064

Q25 Mathematics

The value of $\frac{\{(13)^3 - 4^3\}}{13 - 8 \div 2} \div 8 - \{2 + 6 \times 9\}$ is:

A. $-\frac{211}{8}$

B. $\frac{685}{8}$

C. $-\frac{217}{8}$

D. $-\frac{685}{8}$

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q26 Mathematics

What is the value of the following expression?

$(\tan 2° \tan 88°)\ (\tan 3° \tan 87°) \ldots (\tan 43° \tan 47°) \tan 45°$

A. 0

B. ∞

C. 1 ✓

D. -1

Q27 Mathematics

The LCM of two numbers is 721, and the numbers are in the ratio of 1 : 7. What is the sum of the numbers?

A. 824 ✓

B. 721

C. 728

D. 825

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Q28 Mathematics

A alone can complete $\frac{2}{5}$ of a task in 12 days, while B alone can complete $\frac{3}{4}$ of the same task in 25 days. In how many days can they complete the task if they work together?

A. $\frac{75}{19}$

B. $\frac{150}{19}$

C. $\frac{1}{19}$

D. $\frac{300}{19}$ ✓

Q29 Mathematics

The value of $\frac{32 \div 4 - 5 \times 8 \div 3}{5 \times 3 - \{6 + 3\}}$ is:

A. $-\frac{8}{9}$ ✓

B. $\frac{1}{9}$

C. $\frac{8}{9}$

D. $\frac{4}{9}$

Q30 Mathematics

What will be the amount of simple interest on ₹75,000 at the rate of $2\frac{5}{3}\%$ per annum for a period of 5 years?

A. ₹13,005

B. ₹13,000

C. ₹13,750 ✓

D. ₹13,050

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find: $\sqrt{(1+3+5)(1+3+5+7)(1+3+5+7+9)}$

A. 600

B. 300

C. 30

D. 60 ✓

Q2 Mathematics

If P = a × m × r and Q = b × m × 2 × r, where a, b, m, r are odd primes. then the HCF of P and Q is:

A. a r

B. b r

C. 2 r

D. m r ✓

Q3 Mathematics

The expression $\frac{\tan A}{1-\cot A} + \frac{\cot A}{1-\tan A}$ can be written as:

A. $sec\ A + cosec\ A$

B. $tan\ A + cot\ A$

C. $1 + sec\ A\ cosec\ A$ ✓

D. $1 + sin\ A\ cos\ A$

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Q4 Mathematics

What will be the value if you multiply $\frac{2}{11}$ by the reciprocal of $-\frac{5}{14}$?

A. $\frac{2}{3}$

B. $\frac{28}{55}$

C. $-\frac{28}{55}$ ✓

D. $-\frac{10}{153}$

Q5 Mathematics

Find the third vertex of an equilateral triangle whose two vertices are (2, 4) and (2, 6).

A. $(\sqrt{3},5)$

B. $(2+\sqrt{3},5)$ ✓

C. $(2,5)$

D. $(2\sqrt{3},5)$

Q6 Mathematics

On simplification, $\frac{2^{10}-3^{10}}{5^{10}-6^{10}}$ is:

A. Cannot be defined

B. a negative rational number

C. neither a positive nor a negative rational number

D. a positive rational number ✓

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Q7 Mathematics

If $7\frac{8}{9}$ is converted into a mixed fraction and its numerator is $70+x$, then the value of x is:

A. 1 ✓

B. 2

C. 3

D. 0

Q8 Mathematics

Balaji invested $\frac{1}{7}$ of his total investment at 4%, $\frac{1}{2}$ at 5% and the rest at 6% for 1 year. He received a total interest of ₹730. What was the total sum invested?

A. ₹24,000

B. ₹14,000 ✓

C. ₹7,000

D. ₹38,000

Q9 Mathematics

If ΔABC is right angled at C $CD \perp AB, \angle A = 55°$ then, $\angle ACD = ?$

A. 35° ✓

B. 55°

C. 60°

D. 45°

Q10 Mathematics

A dealer buys 200 quintals of wheat at ₹1,200 per quintal. He spends ₹10,000 on transportation and storage. If he sells the wheat at ₹13 per kg, then the profit percentage of the dealer is:

A. 3%

B. 1%

C. 2%

D. 4% ✓

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Q11 Mathematics

The greatest prime number less than 200 is:

A. 199 ✓

B. 191

C. 197

D. 193

Q12 Mathematics

If a tangent to a circle from a point P meets the circle at A with AP=15cm. Given that the radius of the circle is 8cm, find the distance of P from the centre of the circle.

A. 20 cm

B. 17 cm ✓

C. 12 cm

D. 15 cm

Q13 Mathematics

If the side of a cube is $9\sqrt{3}$ cm, then its diagonal will be:

A. 28 cm

B. 27 cm ✓

C. 26 cm

D. 29 cm

Q14 Mathematics

If $\frac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta} = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, then the angle θ is .

A. $240°$

B. $45°$

C. $300°$ ✓

D. $90°$

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Q15 Mathematics

The factorisation of $x^2 + 11xy + 24y^2$ is:

A. $(x - 8y)(x - 3y)$

B. $(x + 8y)(x + 3y)$ ✓

C. $(x - 8y)(x + 3y)$

D. $(x + 8y)(x - 3y)$

Q16 Mathematics

If the simple interest on a certain sum of money for 3 years at 8% p.a. is half the compound interest on ₹4,000 for 2 years at 10% p.a., then the sum placed on simple interest is:

A. ₹1,550

B. ₹1,650

C. ₹2,000

D. ₹1,750 ✓

Q17 Mathematics

Find the area of a triangle whose vertices are (a, b + c), (a, b – c) and (–a, c).

A. 2 b (a + c)

B. c (a – b)

C. 2 bc

D. 2 ac ✓

Q18 Mathematics

How many one-thirds are there in 72?

A. 144

B. 24

C. 216 ✓

D. 288

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Q19 Mathematics

The rate of compound interest p.a. at which a sum of ₹1,200 will become ₹1,348.32 in 2 years is:

A. 6% ✓

B. 7%

C. 8%

D. 5%

Q20 Mathematics

A works twice as fast as B. If both of them together can finish a job in 12 days, then how many days will B take to finish the job alone?

A. 24

B. 36 ✓

C. 12

D. 48

Q21 Mathematics

A certain distance (d) is covered by a cyclist at a certain speed. If a jogger covers half the distance in double the time (t), then the ratio of speed of the cyclist to the speed of the jogger is:

A. 2 : 1

B. 4 : 1 ✓

C. 3 : 4

D. 1 : 2

Q22 Mathematics

200 g as a fraction of 1 kg is:

A. $\frac{2}{5}$

B. $\frac{1}{10}$

C. $\frac{1}{5}$ ✓

D. $\frac{3}{10}$

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Q23 Mathematics

The ratio of the number of boys to that of the girls in a school is 3 : 2. If 20% of the boys and 25% of the girls are scholarship holders, find the percentage of those who are NOT scholarship holders.

A. 68%

B. 78% ✓

C. 87%

D. 86%

Q24 Mathematics

If in a circle of radius r = 36 cm a sector of arc length l, satisfies $4l = 3r$, then the area of the sector is:

A. 496 cm^2

B. 486 cm^2 ✓

C. 476 cm^2

D. 461 cm^2

Q25 Mathematics

When a bicycle manufacturer reduced the selling price of a bicycle by 50%, the number of bicycles sold radically increased by 700%. Initially, the manufacturer was getting a profit of 140%. What is the new profit percentage?

A. 30%

B. 40%

C. 10%

D. 20% ✓

Q26 Mathematics

Mahesh and Hareesh have invested ₹20,000 and ₹30,000, respectively, in a business. If after 3 months, Hareesh withdrew ₹5,000 from his investment, then the ratio in which they divide the profits will be:

A. 16 : 22

B. 16 : 23

C. 16 : 20

D. 16 : 21 ✓

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Q27 Mathematics

The mixed surd form of $\sqrt{1350}$ is:

A. $12\sqrt{6}$

B. $15\sqrt{6}$ ✓

C. $13\sqrt{6}$

D. $14\sqrt{6}$

Q28 Mathematics

LCM of two numbers is 78. Their GCD is 13. If one of the numbers is 26, then the other number is:

A. 39 ✓

B. 46

C. 13

D. 52

Q29 Mathematics

If Rama can do a task in 20 days and Krishna can do it in 30 days, then the time taken by both to complete the task working together is:

A. 12 days ✓

B. 8 days

C. 15 days

D. 10 days

Q30 Mathematics

The descending order of $\frac{2}{5}, \frac{1}{3}$, and $\frac{3}{7}$ is:

A. $\frac{1}{3}, \frac{2}{5}, \frac{3}{7}$

B. $\frac{3}{7}, \frac{1}{3}, \frac{2}{5}$

C. $\frac{2}{5}, \frac{1}{3}, \frac{3}{7}$

D. $\frac{3}{7}, \frac{2}{5}, \frac{1}{3}$ ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Reena and Jaya can complete a piece of work in 6 days and Jaya alone can complete it in 8 days. In how many days can Reena alone complete it?

A. 48 days

B. 24 days ✓

C. 2 days

D. 12 days

Q2 Mathematics

The roots of the equation $y^2 - \sqrt{5}\,y - y + \sqrt{5} = 0$ are:

A. $\sqrt{5};\ 1$ ✓

B. $-\sqrt{5};\ 1$

C. $\sqrt{5};\ -1$

D. $-\sqrt{5};\ -1$

Q3 Mathematics

The value of $0.\overline{23} + 0.\overline{22}$ is:

A. $0.4\overline{5}$

B. $0.\overline{45}$ ✓

C. 0.45

D. $0.\overline{43}$

Q4 Mathematics

$(\sqrt{5}+\sqrt{7})^2$ is a:

A. irrational number ✓

B. rational number

C. whole number

D. natural number

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Q5 Mathematics

The HCF of $28\,p^5q^2$ and $70\,p^3q^4$ is:

A. $70\,p^3q^4$

B. $28\,p^3q^2$

C. $14\,p^5q^4$

D. $14\,p^3q^2$ ✓

Q6 Mathematics

If a map of a city was drawn on a scale of 0.05 centimetre to kilometre, what area would represent a country if it has an area of 8000 square kilometres?

A. $20\ cm^2$ ✓

B. $25\ cm^2$

C. $10\ cm^2$

D. $5\ cm^2$

Q7 Mathematics

Four options are given below, of which three are similar in a certain manner while one is different from the rest. Find the odd one.

A. $\sqrt{5}$

B. $\sqrt{7}$

C. $\sqrt{3}$

D. $\sqrt{9}$ ✓

Q8 Mathematics

If SA and SB are tangents to a circle from an outside point S, such that $SA = 12$ cm and angle $ASB = 60°$. What will the length of chord AB be?

A. 24 cm

B. 12 cm ✓

C. 6 cm

D. 3 cm

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Q9 Mathematics

रानी ने अपने पास मौजूद धनराशि में से 6.25% खर्च कर दिया। यदि उसके द्वारा व्यय की गई राशि ₹75 है, तो उसके पास कितनी राशि थी।

A. ₹1200 ✓

B. ₹120

C. ₹100

D. ₹1000

Q10 Mathematics

An irrational number between 3 and 5 is:

A. $\sqrt{17}$ ✓

B. $\sqrt{27}$

C. $\sqrt{3}$

D. $\sqrt{5}$

Q11 Mathematics

Which of the following statements is false?

A. There is no largest natural number.

B. 1 is the smallest natural number.

C. All natural numbers together with zero are called integers. ✓

D. There is no largest whole number.

Q12 Mathematics

If each entry of a piece of data is increased by 7, then the arithmetic mean:

A. increases by 7 ✓

B. decreases by 7

C. increases by 49

D. remains the same

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Q13 Mathematics

Sohan and Mohan start from the school with a speed of 3.5 km/hr and 4 km/hr. What time will they take to be 1.5 km apart if they start in the same direction?

A. 3 hours ✓

B. 90 min

C. 1 hour

D. 12 min

Q14 Mathematics

Sita earns 25% more than Rahim. By how much % does Rahim earn less than Sita?

A. 25%

B. 20% ✓

C. 10%

D. 5%

Q15 Mathematics

किसी संख्या का $\frac{1}{6}$वां भाग, इसके $\frac{1}{9}$वें भाग से 100 अधिक है, संख्या ज्ञात कीजिए।

A. 1800 ✓

B. 3600

C. 360

D. 180

Q16 Mathematics

By selling articles at ₹31, a shopkeeper losses 7%. What will the profit percentage be when he sells the same article at ₹35?

A. 4%

B. 5% ✓

C. 6%

D. 7%

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Q17 Mathematics

What is the third proportion to 12 and 30?

A. 750

B. 150

C. 360

D. 75 ✓

Q18 Mathematics

Farman has to secure 60% marks to pass. He got 60 marks and fail by 60 marks. What are the maximum marks?

A. 180

B. 200 ✓

C. 100

D. 120

Q19 Mathematics

If the arithmetic mean of 16, 18, 15, 17, p and 14 is 17, then the value of p is:

A. 24

B. 22 ✓

C. 23

D. 21

Q20 Mathematics

A and B working alone can finish a task in 12 and 16 days respectively. In how many days can the task be finished if they work for one day each alternatively, and A begins the work?

A. $13\frac{2}{3}$ days ✓

B. $12\frac{1}{3}$ days

C. $12\frac{2}{3}$ days

D. $13\frac{1}{3}$ days

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Q21 Mathematics

The diameters of the bases of two cones are equal. If their slant heights are in the ratio of 3 : 4, then what will the ratio of their curved surface areas be?

A. 16 : 9

B. 4 : 3

C. 9 : 16

D. 3 : 4 ✓

Q22 Mathematics

The population of a town increases by 5% annually and its present population is 640000. What will its population be in 2 years' time?

A. 745880

B. 705600 ✓

C. 704600

D. 744880

Q23 Mathematics

$(\sqrt{5}+\sqrt{11})(\sqrt{5}-\sqrt{11})$ is equal to:

A. -6 ✓

B. 25

C. -121

D. 6

Q24 Mathematics

If the ratio of the sine of an acute angle to its cosine is 5 : 12, then what will the value of sine of that angle be?

A. $\frac{12}{5}$

B. $\frac{12}{13}$

C. $\frac{5}{12}$

D. $\frac{5}{13}$ ✓

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Q25 Mathematics

The mean of 20 observations is 22.5. One observation was wrongly noted as -25 instead of 25. The correct mean is:

A. 21.75

B. 23.75

C. 20

D. 25 ✓

Q26 Mathematics

The weights (in kg) of 7 men are 64, 63, 62, 65, 67, 66 and 61. The median weight is:

A. 65 kg

B. 64 kg ✓

C. 66 kg

D. 63 kg

Q27 Mathematics

The diameter of a hemisphere is 7 cm. What will its total surface area be?

A. 115.50 cm^2 ✓

B. 154 cm^2

C. 77 cm^2

D. 105.50 cm^2

Q28 Mathematics

If the HCF of 85 and 153 is expressible in the form of $85x - 153$, then the value of x is:

A. 1

B. 2 ✓

C. 3

D. 5

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Q29 Mathematics

The value of $p^2 - 7p + 12$ at $p = 3$ is:

A. 8

B. 0 ✓

C. 42

D. -6

Q30 Mathematics

Which of the following has terminal decimal representation?

A. $\frac{2}{3}$

B. $\frac{2}{5}$ ✓

C. $\frac{2}{9}$

D. $\frac{2}{7}$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If the sides of a triangle are 5 cm, 4 cm and 3 cm, what will be its area?

A. $12\ cm^2$

B. $6\ cm^2$ ✓

C. $3\ cm^2$

D. $2\ cm^2$

Q2 Mathematics

If $a : b = 2 : 7$, then what will be the value of $(3a + 2b) : (5a - 2b)$?

A. $\frac{1}{7}$

B. -5 ✓

C. 0

D. 5

Q3 Mathematics

The value of $\left(\frac{\sin 29^\circ}{\cos 61^\circ} - 4(\cos^2 31^\circ + \cos^2 59^\circ) + \frac{1}{\sqrt{3}}\tan 27^\circ \sin 60^\circ \tan 63^\circ\right)$ is:

A. $-\frac{5}{2}$ ✓

B. 10

C. $\frac{1}{2}$

D. -5

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Q4 Mathematics

What is the value of $\frac{1-\tan^2 A}{1+\tan^2 A}$?

A. $\cos 2A$ ✓

B. $\cos^2 A$

C. $\sin 2A$

D. 1

Q5 Mathematics

If $x = a\operatorname{cosec}\theta + b\cot\theta$, $y = b\operatorname{cosec}\theta + a\cot\theta$, then what will be the value of $x^2 - y^2$?

A. $a^2 - b^2$ ✓

B. $a^2 + b^2$

C. $a + b$

D. 0

Q6 Mathematics

How many prime numbers are there that are less than 50?

A. 16

B. 13

C. 15 ✓

D. 14

Q7 Mathematics

The value of

$5 + 5 \times 2 \div 5$ is:

A. 1

B. 10

C. 7 ✓

D. 3

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Q8 Mathematics

The value of

$3 \div 1 - 2 + 3$ is:

A. 4 ✓

B. -1

C. 7

D. -3

Q9 Mathematics

When you reverse the digits of the number 14, the number increases by 27. How many other two-digit numbers increase by 27 when their digits are reversed?

A. 4

B. 6

C. 7

D. 5 ✓

Q10 Mathematics

If 20% of 160 + 10% of 50 = x – 1, then what will be the value of x?

A. 19

B. –38

C. 38 ✓

D. 36

Q11 Mathematics

What will be $41\frac{2}{3}\%$ of ₹84?

A. ₹40

B. ₹45

C. ₹25

D. ₹35 ✓

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Q12 Mathematics

What is the positive difference between $\frac{5}{16}$ and its reciprocal?

A. $2\frac{73}{80}$

B. $2\frac{61}{80}$

C. $2\frac{71}{80}$ ✓

D. $2\frac{69}{80}$

Q13 Mathematics

15% of a number is 165. Find the number.

A. 1100 ✓

B. 1200

C. 1350

D. 1500

Q14 Mathematics

If 10% of 980 – x% of 450 = 5% of 160, then what will be the value of x?

A. 25

B. 22

C. 20 ✓

D. 15

Q15 Mathematics

If $a + b = 5$ and $ab = 13$, then what will be the value of $a^3 + b^3$?

A. 30

B. 60

C. 12

D. –70 ✓

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Q16 Mathematics

What is the value of $\sqrt{\frac{1+\sin A}{1-\sin A}}$?

A. $\sec A + \tan A$ ✓

B. $\sec A - \tan A$

C. $\cos A + \tan A$

D. $\cos A + \sin A$

Q17 Mathematics

If $\operatorname{acot}\theta = b$, then what will be the value of $\frac{b\cos\theta - a\sin\theta}{b\cos\theta + a\sin\theta}$?

A. 0

B. $b^2 + a^2$

C. $\frac{b^2 - a^2}{b^2 + a^2}$ ✓

D. $\frac{b^2 + a^2}{b^2 - a^2}$

Q18 Mathematics

Which of the following options is equal to $\sqrt{2 - \sqrt{3}}$?

A. $\frac{\sqrt{6} - \sqrt{2}}{2}$ ✓

B. $\frac{2 - \sqrt{3}}{2}$

C. $\frac{\sqrt{6} - \sqrt{3}}{2}$

D. $\frac{\sqrt{2} - \sqrt{3}}{2}$

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Q19 Mathematics

Area of a square is equal to ten times the area of a rectangle of edge 5 cm × 8 cm. What is the perimeter of the square?

A. 120 cm

B. 80 cm ✓

C. 60 cm

D. 40 cm

Q20 Mathematics

The LCM of 63, 36 and x is 252. Which of the following options CANNOT be a value of x?

A. 28

B. 42

C. 14

D. 56 ✓

Q21 Mathematics

An article is purchased for ₹200 and sold for ₹350.The percentage gain will be:

A. 50%

B. 25%

C. 100%

D. 75% ✓

Q22 Mathematics

If $\frac{\sqrt{5}+\sqrt{2}}{\sqrt{5}-\sqrt{2}} = a + b\sqrt{10}$, then which of the following is correct?

A. $a = \frac{1}{3}, b = \frac{2}{3}$

B. $a = \frac{7}{3}, b = \frac{1}{3}$

C. $a = b = \frac{1}{3}$

D. $a = \frac{7}{3}, b = \frac{2}{3}$ ✓

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Q23 Mathematics

To complete a task, A and B take 24 days, B and C take 12 days and A, B and C take 6 days. A and C will take:

A. $\frac{24}{5}$ days ✓

B. 2 days

C. 4 days

D. 24 days

Q24 Mathematics

If $\frac{\cos A}{1-\sin A}+\frac{\cos A}{1+\sin A}=4$, then what will be the value of A?

A. 90°

B. 60° ✓

C. 30°

D. 45°

Q25 Mathematics

$25.12 \times 37.5 = 942$. What is the value of 2512×0.00375?

A. 0.0942

B. 9.42 ✓

C. 94.2

D. 0.942

Q26 Mathematics

A and B together can complete a task in 20 days while B alone can complete the same task in 60 days. A alone will be able to complete the same task in:

A. 20 days

B. 45 days

C. 30 days ✓

D. 15 days

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Q27 Mathematics

If $a : b = 5 : 3$ and $b : c = 3 : 7$, then what will be the value of $a : c$?

A. $\frac{3}{7}$

B. $\frac{5}{7}$ ✓

C. $\frac{15}{7}$

D. $\frac{25}{7}$

Q28 Mathematics

A can complete a task in 20 days while B can complete it in 30 days. In how many days can A and B working together complete it?

A. 4 days

B. 6 days

C. 8 days

D. 12 days ✓

Q29 Mathematics

In a transaction, profit percentage is 20% of the cost. If the cost increases by 5% but selling price remains the same, how much is the decrease in percentage profit?

A. 7%

B. 14.2% ✓

C. 8%

D. 14%

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Q30 Mathematics

50% of a number added to 20% of 40 gives a sum of 20. What is the number?

A. 20

B. 24 ✓

C. 40

D. 32

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A boy bought some toffee at the rate of 15 toffees for ₹3 and sold all of them at the rate of 3 toffee for ₹2. Find the gain or loss.

A. $233\frac{1}{3}$ % loss

B. $233\frac{1}{3}$ % gain ✓

C. $233\frac{2}{3}$ % loss

D. $233\frac{2}{3}$ % gain

Q2 Mathematics

By selling a vehicle for ₹52,500, Ram suffers a 25% loss. What was his loss?

A. ₹16,500

B. ₹17,000

C. ₹17,500 ✓

D. ₹18,000

Q3 Mathematics

At what rate per cent of simple interest does a sum of money double itself in 12 years?

A. $8\frac{2}{3}$ %

B. $9\frac{2}{3}$%

C. $8\frac{1}{3}$ % ✓

D. $9\frac{1}{3}$ %

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Q4 Mathematics

If $\frac{x}{5} = \frac{y}{6} = \frac{z}{11}$, then $\frac{x+y+z}{z}$ is equal to:

A. 5

B. 3

C. 2 ✓

D. 4

Q5 Mathematics

The population of a town increases 10% annually. If it's present population is 6,400, what will the population in 2 years be?

A. 7,746

B. 7,744 ✓

C. 7,742

D. 7,740

Q6 Mathematics

The product of two co-prime numbers is 119. Their LCM should be:

A. 119 ✓

B. 1

C. 7

D. 17

Q7 Mathematics

The angles of a quadrilateral are in the ratios 2 : 4 : 6 : 8. The smallest of these angles is:

A. 60°

B. 22°

C. 72°

D. 36° ✓

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Q8 Mathematics

Find the difference of the face values of 9 and 3 in 3,15,298.

A. 6 ✓

B. 2,99,910

C. 27

D. 3,00,090

Q9 Mathematics

There are 3 pieces of wooden logs which are 48 m, 56 m and 72 m long. What is the greatest possible length by which these can be completely measured?

A. 9 m

B. 7 m

C. 11 m

D. 8 m ✓

Q10 Mathematics

Find the smallest number that is exactly divisible by 7, 14, 28, 35 and 42.

A. 450

B. 430

C. 410

D. 420 ✓

Q11 Mathematics

If $\cos\theta + \sec\theta = 2$, then the value of $\sin^6\theta + \mathrm{Cos}^6\theta$ is:

A. 2

B. $\frac{1}{2}$

C. 1 ✓

D. $\frac{1}{3}$

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Q12 Mathematics

Solve the following:

$(0.\bar{5} + 0.\bar{6} + 0.\bar{7} + 0.\bar{8}) = ?$

A. $2\frac{4}{9}$

B. $2\frac{5}{9}$

C. $2\frac{7}{9}$

D. $2\frac{8}{9}$ ✓

Q13 Mathematics

The product of $\left(1-\frac{1}{x+1}\right)\left(1-\frac{1}{x+2}\right)\left(1-\frac{1}{x+3}\right)\ldots\ldots\ldots\ldots\left(1-\frac{1}{2x}\right)$ is:

A. $\left(\frac{x-1}{2x}\right)$

B. $\frac{1}{2}$ ✓

C. $\left(\frac{2x+1}{2x}\right)$

D. $\frac{3}{2}$

Q14 Mathematics

If $2\sin(3x-3)^\circ = \tan 240^\circ$, then the value of x in degree is:

A. 21° ✓

B. 25°

C. 27°

D. 23°

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Q15 Mathematics

The sum of the four consecutive even numbers is 484. What would the smallest number be?

A. 118 ✓

B. 128

C. 114

D. 242

Q16 Mathematics

The ratio of the radii of two circles is 1 : 4. The ratio of their areas is:

A. 1 : 8

B. 1 : 32

C. 1 : 24

D. 1 : 16 ✓

Q17 Mathematics

Which of the four options provided below will be the closest to the area of an equilateral triangle, each of whose sides is 10 m long?

A. $42.25\ m^2$

B. $45.25\ m^2$

C. $43.25\ m^2$ ✓

D. $44.25\ m^2$

Q18 Mathematics

The value of $3 + 12 + 27 + \cdots \ldots\ldots\ldots\ldots\ldots\ldots + 3n^2$ is:

A. $\frac{n(n+1)(2n+1)}{2}$ ✓

B. $\frac{n(n+1)(2n+1)}{6}$

C. $\frac{n(n+1)}{2}$

D. $\frac{n(n+1)(2n+1)}{3}$

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Q19 Mathematics

X and Y can complete a piece of work in 16 days, Y and Z can do the same piece of work in 24 days. X, Y and Z together can do it in 12 days. How much time will X and Z take to finish it?

A. 10 days

B. 16 days ✓

C. 12 days

D. 14 days

Q20 Mathematics

If Sachin secures 70% marks in mathematics and 60% in science, what percentage of marks did Sachin get in both subjects together, assuming both subjects to have equal maximum marks?

A. 60%

B. 65% ✓

C. 55%

D. 70%

Q21 Mathematics

Fill in the blank, _____% of 50 = 40.

A. 60

B. 80 ✓

C. 70

D. 90

Q22 Mathematics

If the salary of A is 25% more than that of B, then how much per cent is the salary of B lower than that of A?

A. 35%

B. 30%

C. 20% ✓

D. 25%

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Q23 Mathematics

If $3x = \text{cosec}\,\theta$ and $\frac{3}{x} = \cot\theta$, then the value of $9\left(x^2 - \frac{1}{x^2}\right)$ is

A. 1 ✓

B. $\frac{1}{3}$

C. 0

D. $\frac{1}{9}$

Q24 Mathematics

A and B together can dig a tank in 12 days, which A alone can dig in 24 days. How much of the tank can B dig in 1 day?

A. $\frac{1}{4}$

B. $\frac{1}{12}$

C. $\frac{1}{36}$

D. $\frac{1}{24}$ ✓

Q25 Mathematics

Find the place value of 7 in 71,624.

A. 70,000 ✓

B. 700

C. 7,000

D. 7

Q26 Mathematics

Two numbers are in the ratio of 2 : 3 and the product of their LCM and HCF is 9600. The sum of the numbers is:

A. 250

B. 150

C. 200 ✓

D. 100

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Q27 Mathematics

If $\tan 3\theta . \tan 6\theta = 1$, then the value of $\tan 30\theta$ is:

A. $3\sqrt{3}$

B. $-\sqrt{3}$ ✓

C. $-\frac{1}{\sqrt{3}}$

D. 0

Q28 Mathematics

A is twice as efficient as B and together, they finish a piece of work in 20 days. A alone can finish the work in:

A. 26 days

B. 30 days ✓

C. 28 days

D. 20 days

Q29 Mathematics

If $\sin\theta = \frac{5}{13}$, and θ is a positive acute angle, then what is the value of $\frac{\cos\theta - \tan\theta}{2\cot\theta}$?

A. $\frac{385}{3744}$

B. $\frac{395}{3744}$ ✓

C. $\frac{375}{3744}$

D. $\frac{365}{3744}$

Q30 Mathematics

The sum of two numbers is 75 and the difference of their squares is 300. Find the difference between the two numbers.

A. 4 ✓

B. 3

C. 5

D. 6

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

250 candidates appeared for an examination, out of which 225 passed. The percentage of the candidates who passed is:

A. 90% ✓

B. 96%

C. 93%

D. 84%

Q2 Mathematics

The areas of two similar triangles are respectively 16 m^2 and 36 m^2. Find the ratio of their corresponding sides.

A. 16 : 36

B. 4 : 8

C. 4 : 6 ✓

D. 3 : 4

Q3 Mathematics

A is only 40% as efficient as B. C is 50% as efficient as A and B together. If C alone completes the task in 30 days, then A, B and C together can complete the task in:

A. 8 days

B. 10 days ✓

C. 5 days

D. 12 days

Q4 Mathematics

A does half as much work as B in three-fourth of the time taken by B. If together they take 12 days to complete the work, how much time shall B take to do it alone?

A. 15 days

B. 20 days ✓

C. 10 days

D. 16 days

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Q5 Mathematics

Simplify the following.

$$\frac{289 \times 289 \times 289 + 111 \times 111 \times 111}{289 \times 289 - 289 \times 111 + 111 \times 111}$$

A. 400 ✓

B. 0

C. 289

D. 300

Q6 Mathematics

If $\frac{121}{0.121} = \frac{12.1}{x}$, then the value of x will be:

A. 0.0121 ✓

B. 0.1210

C. 1.210

D. 0.1121

Q7 Mathematics

Two natural numbers are in the ratio of 6 : 8 and their product is 768. The smaller of the numbers is:

A. 12

B. 8

C. 24 ✓

D. 32

Q8 Mathematics

A thief steals a bag from the car at 3 p.m. and drives away at a speed of 50 km/h. The thief is located at 4 p.m. and the owner sets off in his car at a speed of 70 km/h. When will he catch the thief?

A. 6:30 p.m. ✓

B. 8:00 p.m.

C. 6:00 p.m.

D. 8:45 p.m.

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Q9 Mathematics

The numerator of a fraction is increased by 20% and the denominator is decreased by 50%. If the resultant fraction is $\frac{5}{6}$, then what will be the original fraction?

A. $\frac{25}{84}$

B. $\frac{25}{72}$ ✓

C. $\frac{72}{25}$

D. $\frac{25}{12}$

Q10 Mathematics

Ravikant cycles at a speed of 12.5 km/h and walks at a speed of 3 km/h. To cover a distance of 40 km by cycle and walk both, Ravikant took 7 hours. How many of these hours were spent cycling?

A. 4

B. 5

C. 2 ✓

D. 3

Q11 Mathematics

By selling 50 mangoes for ₹30, a person loses 10%. How many mangoes should he sell for ₹28 to gain 20%?

A. 35 ✓

B. 25

C. 30

D. 20

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Q12 Mathematics

If $\tan\theta = \frac{5}{12}, 0 < \theta < \frac{\pi}{2}$, then the value of $\frac{\cos\theta + 5\cot\theta}{\operatorname{cosec}\theta - \cos\theta}$ will be:

A. $\frac{845}{109}$

B. $\frac{860}{190}$

C. $\frac{840}{109}$ ✓

D. $\frac{840}{190}$

Q13 Mathematics

The present ages of Sheo Kumar and Dileep Kumar are in the ratio of 9 : 10. After 11 years this ratio will become 10 : 11. What are the present ages of Sheo Kumar and Dileep Kumar?

A. 81 years and 90 years

B. 54 years and 60 years

C. 72 years and 80 years

D. 99 years and 110 years ✓

Q14 Mathematics

When $x^4 - px^3 + 2x^2 - 5x + 8$ is divided by $x - 1$, the remainder is $2p$. The value of p is:

A. 5

B. 3

C. 1

D. 6 ✓

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Q15 Mathematics

What is the value of the following expression?

$$(14 \div 7) \times [8 + \{3 + 8 - 2\}] - (5 - 2)$$

A. 25

B. 31 ✓

C. 28

D. 30

Q16 Mathematics

The value of $2\sin 30^0 + 5\cos 60^0 + 3\sin 180^0$ is:

A. $\frac{1}{2}$

B. $\frac{7}{2}$ ✓

C. $-\frac{1}{2}$

D. $\frac{9}{2}$

Q17 Mathematics

Working 5 h a day, A can complete a task in 8 days and working 6 h a day, B can complete the same task in 10 days. Working 8 h a day, they can jointly complete the task in:

A. 4.5 days

B. 5 days

C. 3 days ✓

D. 6 days

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Q18 Mathematics

A man purchases a washing machine for ₹12,000. He pays ₹2,000 at first and the rest after 1 year, on which he is charged a simple interest at the rate of 10% per year. The total amount he pays for the washing machine is:

A. ₹13,000 ✓

B. ₹15,000

C. ₹12,000

D. ₹16,000

Q19 Mathematics

The sum of first 'n' natural numbers is:

A. $\frac{n(n+1)}{2}$ ✓

B. $\frac{n(n-1)}{2}$

C. $\frac{n}{2}$

D. $\frac{n}{2}+1$

Q20 Mathematics

If $a = 9$, $b = -5$ and $c = -4$, then find the value of $a^3 + b^3 + c^3$.

A. 570

B. 560

C. 550

D. 540 ✓

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Q21 Mathematics

Solve the following.

$$\frac{3}{\sqrt{0.0009}} + \frac{4}{\sqrt{0.0016}} = ?$$

A. $\frac{1}{200}$

B. $\frac{1}{50}$

C. 200 ✓

D. 100

Q22 Mathematics

The roots of the equation $3x^2 + 5x - a = 0$ are the reciprocals of each other. What is the value of a?

A. 3

B. −3 ✓

C. −2

D. 2

Q23 Mathematics

What is the simplest form of the ratio of 6 h : 3 days?

A. $\frac{1}{9}$

B. $\frac{1}{3}$

C. $\frac{1}{12}$ ✓

D. $\frac{1}{6}$

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Q24 Mathematics

The ratio of the incomes of Barun and Anil is 12 : 13 and that of their expenditures is 10 : 13. Find the income of Barun and Anil, if they save ₹2100 and ₹1,300, respectively.

A. ₹5,550 and ₹4,560

B. ₹4,550 and ₹3,550

C. ₹5,000 and ₹2,000

D. ₹6,600 and ₹7,150 ✓

Q25 Mathematics

$\frac{225^{0.2} \times 225^{0.3}}{225^{0.6} \times 225^{0.4}}$ is equal to:

A. 15

B. 1.5

C. $\frac{1}{15}$ ✓

D. $\frac{1}{25}$

Q26 Mathematics

The adjacent sides of a parallelogram are 4a and 3a. If the angle between them is 60°, then one of the diagonals of the parallelogram will be:

A. $\sqrt{13}a$ ✓

B. $2\sqrt{3}a$

C. $5\sqrt{3}a$

D. $3\sqrt{3}a$

Q27 Mathematics

While solving a mathematical problem, Atul squared the initial number and then subtracted 15 from it. Pratul first subtracted 15 from the initial number and then squared the difference. If both obtained the same answer, what was the initial number?

A. 8 ✓

B. 6

C. 9

D. 7

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Q28 Mathematics

If the surface area of a cube is $1014\ m^2$, then its volume is:

A. $1929\ m^3$

B. $2197\ m^3$ ✓

C. $2127\ m^3$

D. $2028\ m^3$

Q29 Mathematics

A student represents his scores in Mathematics, Statistics and Economics examinations in a pie chart. The central angle for Mathematics is $180°$. He scored 80 in Statistics and 70 in Economics. His score in Mathematics is:

A. 150 ✓

B. 210

C. 130

D. 180

Q30 Mathematics

The square root of $\frac{(3\frac{1}{4})^4-(4\frac{1}{3})^4}{(3\frac{1}{4})^2-(4\frac{1}{3})^2}$ is:

A. $1\frac{1}{12}$

B. $5\frac{5}{12}$ ✓

C. $1\frac{1}{7}$

D. $7\frac{7}{12}$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

How many numbers are there between 200 to 1000 that are completely divisible by 7?

A. 116

B. 115

C. 114 ✓

D. 113

Q2 Mathematics

Find the value of $a^2 + b^2 + c^2 - 2ab + 2ac - 2bc$, if $a = x + y$, $b = x - y$ and $c = 2x - 1$

A. $(2x - 2y - 1)^2$

B. $(2x + 2y - 1)^2$ ✓

C. $(x - y - 1)^2$

D. 0

Q3 Mathematics

A carriage driving in a fog passed a man who was walking at the speed of 3 km/h in the same direction. He could see the carriage for 4 min and it was visible to him up to a distance of 100 m. What was the speed of the carriage?

A. 5 km /h

B. 4.5 km/h ✓

C. 5.5 km/h

D. 6 km/h

Q4 Mathematics

Lima's father is four times as old as Lima. Four years ago, his father was six times as old as he was then. Find the present age of his father.

A. 40 years ✓

B. 45 years

C. 35 years

D. 30 years

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Q5 Mathematics

The production in a factory increased from 6600 tons to 7986 tons in 2 years. Find the rate of increase if compounded annually.

A. 14%

B. 12%

C. 10% ✓

D. 8%

Q6 Mathematics

One year ago, the ratio of Laxman's salary to Gopal's salary was 3 : 5. The ratio of their individual salaries of last year to that of present year is 2 : 3 and 4 : 5 respectively. If their total salaries for the present year are ₹4,300, find the present salary of Laxman.

A. ₹1,900

B. ₹1,700

C. ₹1,600

D. ₹1,800 ✓

Q7 Mathematics

If $\frac{\sqrt{7}+\sqrt{2}}{\sqrt{7}-\sqrt{2}} = x + y\sqrt{14}$, find the value of y.

A. $\frac{6}{5}$

B. $\frac{3}{5}$

C. $\frac{2}{5}$ ✓

D. $\frac{4}{5}$

Q8 Mathematics

Each edge of a cube is increased by 50%. Find the percentage increase in its surface area.

A. 130%

B. 125% ✓

C. 120%

D. 100%

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Q9 Mathematics

Two trains start at the same time from two stations and proceed towards each other at the speeds of 20 km/h and 25 km/h respectively. When they meet, it is found that one train has travelled 80 km more than the other. Find the distance between the two stations.

A. 730 km

B. 700 km

C. 710 km

D. 720 km ✓

Q10 Mathematics

If 100 copies of a book of 15 sheets require 26 reams of paper, then how many reams of paper is required for 750 copies of a book of 13 sheets?

A. 169 reams ✓

B. 170 reams

C. 182 reams

D. 165 reams

Q11 Mathematics

784 square tiles, each of side 50 cm are required to tile a floor of a square room. Find the length of the sides of the room.

A. 15 m

B. 14 m ✓

C. 13 m

D. 12 m

Q12 Mathematics

A train starts with full number of passengers. At the first stop, it drops one third of the passengers and takes in 96 more. At the second stop, it drops one half of the passengers onboard and takes in 12 more. If there are 248 passengers onboard traveling to third station, then with how many passengers did the train start?

A. 564 ✓

B. 560

C. 570

D. 580

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Q13 Mathematics

The area of a square is 36 cm^2. Find the area of the square formed by joining the mid-points of its sides.

A. 28 cm^2

B. 20 cm^2

C. 18 cm^2 ✓

D. 25 cm^2

Q14 Mathematics

Find the sum of the mean and median of the given data.

12, 10, 16, 18, 20, 26, 14, 28

A. 17

B. 44

C. 35 ✓

D. 18

Q15 Mathematics

The simple interest on a given sum of money for two years would have been ₹240 more had the rate of interest per annum been 3% higher. Find the initial sum invested.

A. ₹3,000

B. ₹4,000 ✓

C. ₹8,000

D. ₹3,600

Q16 Mathematics

Find the remainder when $7^{13} + 1$ is divided by 6.

A. 4

B. 3

C. 2 ✓

D. 1

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Q17 Mathematics

Simplify the given expression.

$0.25 \div 0.0025 \times 0.025 \times 2.5$

A. 100

B. 6.25 ✓

C. 400

D. 625

Q18 Mathematics

Find the area of a rhombus of side 17 cm with one of its diagonal 16 cm long.

A. $230\ cm^2$

B. $240\ cm^2$ ✓

C. $220\ cm^2$

D. $225\ cm^2$

Q19 Mathematics

A person sells his table at a profit of $12\frac{1}{2}\%$ and chair at a loss of $8\frac{1}{3}\%$ but on the whole he gains ₹25. On the other hand, if he sells the table at a loss of $8\frac{1}{3}\%$ and the chair at a profit of $12\frac{1}{2}\%$ then he neither gains nor loses. Find the cost price of the table.

A. ₹380

B. ₹360 ✓

C. ₹370

D. ₹350

Q20 Mathematics

An article is sold at a profit of 20%. If both the cost price and selling price are ₹100 less, the profit will be 4% more. Find the cost price.

A. ₹500

B. ₹700

C. ₹800

D. ₹600 ✓

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Q21 Mathematics

What is the greatest number that will divide 2400 and 1810 and leave remainders 6 and 4 respectively?

A. 46

B. 40

C. 42 ✓

D. 44

Q22 Mathematics

Find the median of the data 40, 50, 30, 20, 80, 70, 90, 50. Next, if 30 is replaced by 120, find the new median.

The mean of the two medians found is _____

A. 50

B. 55 ✓

C. 110

D. 60

Q23 Mathematics

Two poles are standing on the ground. The distances between their feet and their tops are 48 m and 50 m respectively. If the height of the small pole is 10 m, find the height of the big pole.

A. 12 m

B. 16 m

C. 14 m

D. 24 m ✓

Q24 Mathematics

If a positive number N, when divided by 5 leaves a remainder 3, then the unit's place digit of N is:

A. 1 or 5

B. 3 or 8 ✓

C. 0 or 2

D. 0 or 5

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Q25 Mathematics

The cost of fencing a rectangular field at ₹24 per meter is ₹1,920. If its length is 23 m, find its breadth.

A. 20 m

B. 19 m

C. 17 m ✓

D. 18 m

Q26 Mathematics

Find the least number which when divided by 8, 12 and 16, leaves three as the remainder in each case but when divided by 7 leaves no remainder.

A. 149

B. 266

C. 248

D. 147 ✓

Q27 Mathematics

In maths, a student got 16% more marks in the second term than that in the first term. If he got 87 marks in the second term, what were his marks in the first term?

A. 60

B. 80

C. 75 ✓

D. 78

Q28 Mathematics

What least number must be subtracted from 1391 so that the remainder when divided by 7, 9, 11 will leave in each case the same remainder 3?

A. 1

B. 4

C. 3

D. 2 ✓

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Q29 Mathematics

A group of men decided to complete a work in 10 days, but five of them remained absent. If the rest of the group completed the work in 12 days, find the original number of men.

A. 24 men

B. 25 men

C. 30 men ✓

D. 40 men

Q30 Mathematics

The top of a tower makes complementary angles of elevation from two points at the distances of 25 m and 16 m from its foot on the ground. Find the height of the tower.

A. 17 m

B. 20 m ✓

C. 18 m

D. 25 m

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A vendor sells 10 oranges for ₹1 and gains 30%. How many oranges did he buy for ₹1?

A. 13 ✓

B. 9

C. 7

D. 11

Q2 Mathematics

A man deposits ₹16,000 on fixed deposit terms of 2 years at 10% compounding interest. If the interest is payable half yearly, how much amount (in ₹) would he receive on maturity?

A. 19,447.1

B. 19,448.1 ✓

C. 19,445.1

D. 19,446.1

Q3 Mathematics

Solve the following.

$$\frac{0.6\times0.6\times0.6+0.7\times0.7\times0.7}{0.6\times0.6-0.42+0.7\times0.7} = ?$$

A. 1.5

B. 1.6

C. 1.3 ✓

D. 1.4

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Q4 Mathematics

Solve the following :

$$\sqrt{7+\sqrt{7+\sqrt{7+\sqrt{7+\cdots}}}}$$

A. $\frac{1\pm\sqrt{28}}{2}$

B. $\frac{1\pm\sqrt{29}}{2}$ ✓

C. $\frac{1\pm\sqrt{31}}{2}$

D. $\frac{1\pm\sqrt{30}}{2}$

Q5 Mathematics

758639 में 8 का आंकिक मान ज्ञात कीजिए।

A. 800

B. 80

C. 8000

D. 8 ✓

Q6 Mathematics

The ratio of the area of an equilateral triangle of side x to the area of a square of side x is:

A. $\sqrt{3}:8$

B. $\sqrt{3}:2$

C. $\sqrt{3}:1$

D. $\sqrt{3}:4$ ✓

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Q7 Mathematics

Find the median and the mode of the following data:

2, 3, 5, 7, 2, 3, 3, 5, 7 and 9.

A. 3, 4

B. 4, 4

C. 4, 3 ✓

D. 3, 3

Q8 Mathematics

A train is moving with the speed of 90 km/h. How many meters will it cover in 15 min?

A. 22500 ✓

B. 24500

C. 21500

D. 23500

Q9 Mathematics

The price of tea has been reduced by 20%. In order to restore the original price, the new price must be increased by:

A. 35%

B. 30%

C. 25% ✓

D. 20%

Q10 Mathematics

The sum of the place values of 3 in 3636 is:

A. 330

B. 3

C. 3030 ✓

D. 3003

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Q11 Mathematics

If $1 + \tan\theta = \sqrt{3}$, then $\sqrt{3}\cot\theta - 1 = ?$

A. $\frac{\sqrt{3}+1}{2}$ ✓

B. $\frac{\sqrt{3}-1}{2}$

C. $\frac{2\sqrt{3}-1}{2}$

D. $\frac{2\sqrt{3}+1}{2}$

Q12 Mathematics

The ratio of the numbers of sides of two regular polygons is 1 : 2. If each interior angle of the first polygon is 140°, then the measure of each interior angle of the second polygon is:

A. 140°

B. 160° ✓

C. 150°

D. 170°

Q13 Mathematics

The value of x satisfying the equation $x^2 + a^2 = (b - x)^2$ is:

A. $\frac{b^2+a^2}{2b}$

B. $\frac{b^2-a^2}{2b}$ ✓

C. $\frac{b^2-a^2}{2a}$

D. $\frac{a^2-b^2}{2b}$

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Q14 Mathematics

If every interior angle of a regular polygon is 144°, then the polygon has _____ sides.

A. 15

B. 10 ✓

C. 8

D. 12

Q15 Mathematics

15 men or 25 women can reap a field in 22 days. How many days will 9 men and 18 women take to reap it?

A. $16\frac{2}{3}$ ✓

B. $15\frac{2}{3}$

C. $17\frac{2}{3}$

D. $18\frac{2}{3}$

Q16 Mathematics

If $\sin\theta - \cos\theta = 0$, and $0 \leq \theta \leq 90^{0}$, then the value of $\sin\theta + \cos\theta$ is:

A. $2\sqrt{2}$

B. $\frac{1}{\sqrt{2}}$

C. $\sqrt{2}$ ✓

D. $\frac{3}{\sqrt{2}}$

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Q17 Mathematics

HCF of $\frac{1}{3}$, $\frac{3}{4}$, $\frac{4}{5}$ and $\frac{5}{6}$ is:

A. $\frac{1}{60}$ ✓

B. $\frac{1}{360}$

C. $\frac{1}{6}$

D. $\frac{1}{30}$

Q18 Mathematics

When $x^4 + x^3 - x^2 + x + 1$ is divided by x - 3, the remainder is:

A. 105

B. 106

C. 104

D. 103 ✓

Q19 Mathematics

Which of the following is the least number that should be added to 3496, so that the sum is exactly divisible by 2, 6, 4 and 3

A. 8 ✓

B. 15

C. 4

D. 11

Q20 Mathematics

Find percentage loss when cost price = ₹850 and selling price = ₹680.

A. 35%

B. 30%

C. 20% ✓

D. 25%

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Q21 Mathematics

Sohan lost 20% by selling his old fan for ₹1,500. At what price (in ₹) he should have sold it to get 20% profit?

A. 2,250 ✓

B. 2,200

C. 2,300

D. 2,150

Q22 Mathematics

The ratio of the length to the breath of a rectangular field is 6 : 5. If the breath is 25 m less than the length, the perimeter of the field is:

A. 550 m ✓

B. 530 m

C. 540 m

D. 560 m

Q23 Mathematics

Solve the following.

$8.75 \times 8.75 - 135.625 + 7.75 \times 7.75 = ?$

A. 1 ✓

B. 3

C. 2

D. 4

Q24 Mathematics

$(41^{43} + 43^{43})$ is divisible by:

A. 12

B. 74

C. 84 ✓

D. 86

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Q25 Mathematics

If the price of sugar falls by 25%, by how much percentage must a household increase its consumption so that the budget remains the same?

A. $33\frac{1}{4}\%$

B. $33\frac{1}{3}\%$ ✓

C. $33\frac{2}{3}\%$

D. $33\frac{3}{4}\%$

Q26 Mathematics

35% of 35% of X = _____ % of X

A. 0.1225

B. 1.225

C. 12.25 ✓

D. 0.01225

Q27 Mathematics

$\cos(x-y) = \frac{\sqrt{3}}{2}$, and $\sin(x+y) = 1$, where x and y are positive acute angles and $x \geq y$, then x and y are:

A. $50°,\ 40°$

B. $80°,\ 10°$

C. $60°,\ 30°$ ✓

D. $70°,\ 20°$

Q28 Mathematics

If 24 persons can complete a task in 5 days, in how many days, 6 persons would be able to complete it?

A. 22

B. 20 ✓

C. 18

D. 16

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Q29 Mathematics

Find the difference of the place and face values of 6 in 516372.

A. 5994 ✓

B. 5998

C. 6698

D. 5394

Q30 Mathematics

Simplify the following.

$$\frac{1}{5} \div \left(\frac{5}{3} \times \frac{3}{25}\right)$$

A. 3

B. 0

C. 2

D. 1 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The Lucknow Shatabdi Express leaves Delhi at 1:30 p.m. and reaches Lucknow at 10:30 p.m. The average speed of the train is 90 km/h. What is the distance covered by the train from Delhi to Lucknow?

A. 750 km

B. 830 km

C. 810 km ✓

D. 800 km

Q2 Mathematics

The mean daily profit by a shopkeeper in a month of 30 days was ₹450. If the mean profit for the first 20 days was ₹300, then the mean profit for the last 10 days will be:

A. ₹750 ✓

B. ₹250

C. ₹500

D. ₹260

Q3 Mathematics

In triangle ABC, the angles are in the ratio of 2 : 3 : 4. The measure of the biggest angle in degrees is:

A. 100°

B. 80° ✓

C. 120°

D. 150°

Q4 Mathematics

Solve the following.

$$25+\left[20-\left\{2\left((20\times\frac{1}{5})\div\frac{1}{8}\times\frac{1}{16}-8\right)\right\}\right]=?$$

A. 26

B. 57 ✓

C. 27

D. 37

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Q5 Mathematics

The length of a rectangle is 1 cm more than its width. Its perimeter is 14 cm. The area of the rectangle is:

A. $28\ \text{cm}^2$

B. $24\ \text{cm}^2$

C. $16\ \text{cm}^2$

D. $12\ \text{cm}^2$ ✓

Q6 Mathematics

Simplify the following.

$$\frac{1}{\sqrt{2}+\sqrt{1}}+\frac{1}{\sqrt{3}+\sqrt{2}}+\frac{1}{\sqrt{4}+\sqrt{3}}+\cdots+\frac{1}{\sqrt{100}+\sqrt{99}}$$

A. 4

B. 10

C. 9 ✓

D. 3

Q7 Mathematics

When water is changed into ice, its volume increases by 10%. If ice is changed into water, the percentage decrease in its volume will be:

A. $\frac{100}{15}\%$

B. $\frac{100}{16}\%$

C. $\frac{100}{11}\%$ ✓

D. $\frac{100}{120}\%$

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Q8 Mathematics

A vendor bought mangoes at the rate of 8 for ₹12 and sold them at the rate of 6 for ₹10. Find his percentage gain.

A. 50%

B. $\frac{100}{9}\%$ ✓

C. 10%

D. $\frac{100}{3}\%$

Q9 Mathematics

If a motor car travels the first half of a distance at a speed of 30 km/h and the remaining half distance at a speed of 50 km/h, what will be its average speed?

A. 37.5 km/h ✓

B. 45 km/h

C. 40 km/h

D. 37 km/h

Q10 Mathematics

Solve the following.

$$\left(\frac{2}{7} \times \frac{-3}{5} - \frac{1}{12} - \frac{3}{5} \times \frac{4}{7}\right) \times 7 = ?$$

A. $\frac{-251}{420}$

B. $\frac{-251}{209}$

C. $\frac{-251}{60}$ ✓

D. $\frac{-251}{210}$

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Q11 Mathematics

The ratio of the length to the breadth of a rectangular field is 7 : 6. If the breadth is 35 m less than the length, then the perimeter of the field is:

A. 910 m ✓

B. 930 m

C. 940 m

D. 920 m

Q12 Mathematics

If the mean of $\frac{x}{2}, x, \frac{x}{3}, \frac{x}{4}$, and $\frac{x}{6}$ is 6, then value of x will be:

A. 4

B. $\frac{40}{3}$ ✓

C. 2

D. $\frac{3}{2}$

Q13 Mathematics

A rectangular field is to be fenced on three sides leaving a side of 30 ft. uncovered. If the area of the field is 690 sq. ft., how many feet of fencing will be required?

A. 46

B. 59

C. 76 ✓

D. 69

Q14 Mathematics

The value of $\frac{0.064 + 0.027}{0.16 - 0.12 + 0.09}$ is:

A. 0.09

B. 0.16

C. 0.7 ✓

D. 0.9

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Q15 Mathematics

The ratio of two numbers is 5 : 6 and their HCF is 6. Their LCM is:

A. 120

B. 66

C. 180 ✓

D. 140

Q16 Mathematics

Atulit has 100 apples. He gave 10% of the apples to Arnav, 15% of the apples to Keshav and $\frac{2}{5}$ th of the apples to Rinku. How many apples are left with Atulit after distribution?

A. 45

B. 25

C. 35 ✓

D. 15

Q17 Mathematics

The difference between the greatest and the smallest number of six digits is:

A. 109999

B. 899999 ✓

C. 100000

D. 895592

Q18 Mathematics

The largest number of four digits which, when divided by 6, 12 and 18 leaves the same remainder 5 in each case is:

A. 9977 ✓

B. 9976

C. 9940

D. 9978

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Q19 Mathematics

When 1.25 is written in simplest fraction form, the difference between the numerator and the denominator is:

A. 1 ✓

B. 0.25

C. 2.5

D. 0.9

Q20 Mathematics

The HCF of

$\frac{9}{10}, \frac{3}{25}, \frac{6}{15}$ and $\frac{12}{5}$ is:

A. $\frac{1}{150}$

B. $\frac{1}{50}$ ✓

C. $\frac{9}{50}$

D. $\frac{3}{70}$

Q21 Mathematics

If $\sin A = \frac{a}{b}$, then find the value of $\cos A$.

A. $\frac{\sqrt{b^2 - a^2}}{b}$ ✓

B. $\frac{\sqrt{b^2 + a^2}}{b}$

C. $\frac{b}{a}$

D. $\frac{b}{a^2 + b^2}$

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Q22 Mathematics

The compound interest on ₹1,400 for 18 months at the rate of 20% per annum is:

A. ₹450

B. ₹470

C. ₹448 ✓

D. ₹454

Q23 Mathematics

If $x = \frac{y}{2}$ and $y = \frac{z}{6}$, then $x : y : z$ is equal to :

A. 2 : 12 : 1

B. 1 : 2 : 3

C. 1 : 2 : 12 ✓

D. 1 : 2 : 6

Q24 Mathematics

A rectangular field has the sides in the ratio of 3 : 4. The area of the field is 300 m^2. The length and the breadth of the field are:

A. 12 m, 18 m

B. 15 m, 25 m

C. 10 m, 5 m

D. 20 m, 15 m ✓

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Q25 Mathematics

A can finish a task in 16 days and B can finish the same task in one fourth the time taken by A. Working together, what part of the same task can they finish in a day?

A. $\frac{1}{16}$

B. $\frac{9}{16}$

C. $\frac{5}{16}$ ✓

D. $\frac{1}{8}$

Q26 Mathematics

A sum of money at simple interest doubles itself in 4 years 4 months. In how much time will it triple itself ?

A. $8\frac{1}{3}$ years

B. 8 years

C. $3\frac{1}{8}$ years

D. $8\frac{2}{3}$ years ✓

Q27 Mathematics

If $\tan\alpha = \frac{1}{x}$, then find the value of $\sin\alpha + \cos\alpha$.

A. $\frac{1 - x}{1 + x^2}$

B. $\frac{1 - x^2}{1 + x^2}$

C. $\frac{1 + x}{\sqrt{1 + x^2}}$ ✓

D. $\frac{2x}{1 + x^2}$

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Q28 Mathematics

Solve the following.

$64.916 + 1.456 - 25.326 = ?$

A. 41.46

B. 40.46

C. 41.046 ✓

D. 40.046

Q29 Mathematics

The sum of two numbers is 25 and the product is 35. The sum of their reciprocals is:

A. $\frac{3}{7}$

B. $\frac{6}{7}$

C. $\frac{4}{7}$

D. $\frac{5}{7}$ ✓

Q30 Mathematics

One fifth of 40% of a number is equal to two third of 30% of another number. What is the respective ratio of the first number to the second number?

A. 2 : 1

B. 1 : 5

C. 5 : 2 ✓

D. 2 : 5

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the cost of fencing a square plot of land with an area of 11025 m^2, at the rate of ₹85 per metre.

A. ₹35,800

B. ₹35,000

C. ₹36,000

D. ₹35,700 ✓

Q2 Mathematics

The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds, respectively. If they all change simultaneously at 8:20 hours, then at what time will they again change simultaneously?

A. 8:29:17 hours

B. 8:28:14 hours

C. 8:27:12 hours ✓

D. 8:25:15 hours

Q3 Mathematics

Find the values of p and q when $px^3 + x^2 - 2x - q$ is exactly divisible by $(x - 1)$ and $(x + 1)$.

A. $p = 2$ and $q = 1$ ✓

B. $p = 1$ and $q = 0$

C. $p = 1$ and $q = 2$

D. $p = 0$ and $q = 1$

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Q4 Mathematics

Find the mean of the given data.

Data	10	15	20	25	30	40	45
Frequency	2	4	3	7	6	3	5

A. 28 ✓

B. 26

C. 30

D. 32

Q5 Mathematics

The area of a trapezium is 540 m^2. If the parallel sides are 30 m and 24 m in length, then find the distance between them.

A. 20 m ✓

B. 22 m

C. 24 m

D. 25 m

Q6 Mathematics

The HCF and LCM of two numbers are 44 and 264, respectively. If the first number is divided by 2, then the quotient is 44. What is the second number?

A. 134

B. 132 ✓

C. 130

D. 136

Q7 Mathematics

A cord is in the form of a square enclosing an area of 22 cm^2. If the same cord is formed into a circle, then find the area enclosed by that circle. [Take $\pi = \frac{22}{7}$]

A. 26 cm^2

B. 20 cm^2

C. 28 cm^2 ✓

D. 30 cm^2

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Q8 Mathematics

Find the sum of the median and mode of the given data.

28, 25, 35, 18, 38, 16, 20, 25.

A. 50 ✓

B. 35

C. 25

D. 38

Q9 Mathematics

Two poles, 15 m and 30 m in height, stand upright in a playground. If their feet are 36 m apart, then find the distance between their tops.

A. 41 m

B. 39 m ✓

C. 40 m

D. 38 m

Q10 Mathematics

If $(2.1 \times 2.1) - (2 \times a \times 2.1) + (0.6 \times 0.6) = 1.5^2$, then find the value of a.

A. 0.6 ✓

B. 2.1

C. 0.62

D. 1.5

Q11 Mathematics

If 9, x, x, 49 are in proportion, then find the value of x.

A. 18

B. 98

C. 58

D. 21 ✓

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Q12 Mathematics

Find the HCF of $\frac{54}{9}, 3\frac{9}{17}$ and $\frac{36}{51}$.

A. $\frac{5}{17}$

B. $\frac{6}{17}$ ✓

C. $\frac{7}{17}$

D. $\frac{8}{17}$

Q13 Mathematics

Two trains start from Delhi and Patna, and travel towards Patna and Delhi, respectively. After passing each other, they take 4 h 48 min and 3 h 20 min to reach Patna and Delhi, respectively. If the train starting from Delhi is moving at a speed of 45 km/h, then find the speed of the other train.

A. 55 km/h

B. 50 km/h

C. 54 km/h ✓

D. 52 km/h

Q14 Mathematics

If $\frac{3\sqrt{2}-2\sqrt{3}}{3\sqrt{2}+2\sqrt{3}} = a + b\sqrt{6}$, then find the value of b.

A. -5

B. 5

C. 2

D. -2 ✓

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Q15 Mathematics

A man covers a certain distance between his house and his office on a scooter. At an average speed of 30 km/h, he is late by 10 min. However, at a speed of 40 km/h he reaches his office 5 min earlier. Find the distance between his house and his office.

A. 30 km ✓

B. 35 km

C. 20 km

D. 40 km

Q16 Mathematics

In a consignment of electric bulbs, 4% were broken and from the remainder, 25% were found to be defective. If the total number of broken and defective bulbs is 112, then find the number of bulbs in the consignment.

A. 500

B. 600

C. 400 ✓

D. 700

Q17 Mathematics

Lovely calculates his profit percentage on selling price, whereas Bunty calculates his on the cost price. They find that the difference in their profits is ₹100. If their selling price is the same, and both of them get a profit of 25%, then what is the selling price?

A. ₹4,000

B. ₹3,000

C. ₹2,500

D. ₹2,000 ✓

Q18 Mathematics

Some amount out of ₹7,000 was lent at 6% p.a. and the remaining at 4% p.a. If the total simple interest received on the amount of ₹7,000 in 5 years was ₹1,600, then find the amount that was lent at 6% p.a.

A. ₹3,000

B. ₹5,000

C. ₹4,000

D. ₹2,000 ✓

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Q19 Mathematics

A boy was set to multiply 495 by 36, but reading one of the digits in the question erroneously, he obtained 16740 as his answer. Which digit did he read erroneously?

A. 9 ✓

B. 8

C. 2

D. 7

Q20 Mathematics

A contractor employs 45 men to dig a canal, 12 km long, in 350 days. After 200 days, he finds that only 4.5 km of the canal has been completed. Find the number of extra men he must employ in order to complete the work on time.

A. 55 ✓

B. 50

C. 35

D. 45

Q21 Mathematics

If $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, then find the value of $x^2 + y^2$.

A. 10

B. 16

C. 14 ✓

D. 12

Q22 Mathematics

A man buys two tables for ₹1,350. He sells one with a loss of 6%, and sells the other to gain $7\frac{1}{2}\%$. Overall, he neither loses nor gains. What is the difference between the cost price of the two tables?

A. ₹50

B. ₹125

C. ₹100

D. ₹150 ✓

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Q23 Mathematics

The angle of elevation from a point on the ground, 120 m away from the foot of a tower, is 60°. Find the height of the tower.

A. $\frac{120}{\sqrt{3}}$ m

B. $\frac{100}{\sqrt{3}}$ m

C. $100\sqrt{3}$ m

D. $120\sqrt{3}$ m ✓

Q24 Mathematics

Simplify the expression $\left(\sqrt{81}+\sqrt{0.81}+\sqrt{0.0081}\right)\sqrt{10000}$.

A. 9.99

B. 99.9

C. 999 ✓

D. 0.999

Q25 Mathematics

An electric pole casts a shadow of length 28 m at a time when a near by tree 8 m high casts a shadow of length 14 m. Find the height of the pole.

A. 16 m ✓

B. 14 m

C. 20 m

D. 15 m

Q26 Mathematics

Find the area of a rhombus whose perimeter is 116 cm and one diagonal is 42 cm in length.

A. $800\ cm^2$

B. $840\ cm^2$ ✓

C. $810\ cm^2$

D. $830\ cm^2$

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Q27 Mathematics

How many numbers lie between the largest three-digit number and the largest four-digit number which are divisible by 5?

A. 1900

B. 1700

C. 1800 ✓

D. 2000

Q28 Mathematics

Find the compound interest on a sum of ₹25,000, for three years, if the rate of interest is 4% p.a. for the first year, 5% p.a. for the second year and 6% p.a. for the third year.

A. ₹5,938

B. ₹3,938 ✓

C. ₹6,038

D. ₹4,938

Q29 Mathematics

If one envelope requires a paper size of 18 cm × 12 cm, then how many envelopes can be made out of a sheet of paper of size 72 cm × 48 cm?

A. 16 ✓

B. 4

C. 8

D. 12

Q30 Mathematics

Find the value of m in $(\frac{2}{7})^{-3} \times (\frac{2}{7})^{-5} = (\frac{2}{7})^{-3m+1}$.

A. 5

B. 3 ✓

C. -2

D. -3

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

In the given data if 30 is replaced by 100 then find the difference of the two medians.

80, 90, 40, 30, 20, 10, 70, 60, 50

A. 40

B. 10 ✓

C. 60

D. 50

Q2 Mathematics

If $x - \frac{1}{x} = 5$, find the value of $x^4 + \frac{1}{x^4}$.

A. 730

B. 727 ✓

C. 728

D. 729

Q3 Mathematics

Tap A can fill a tank in 6 h, whereas Tap B can fill it in 8 h. Tap C can empty the same tank in 4 h. If all the taps are opened together, how long will it take to fill the tank?

A. 20 h

B. 22 h

C. 26 h

D. 24 h ✓

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Q4 Mathematics

An observer at the top of a tower observes that two cars are running towards the foot of the tower at a distance of 120 m from each other making angles of depression α and β such that $\alpha > \beta$ and $\tan\alpha = \sqrt{3}$ and $\tan\beta = \frac{1}{\sqrt{3}}$. Find the height of the tower.

A. $120\sqrt{3}$ m

B. $40\sqrt{3}$ m

C. $80\sqrt{3}$ m

D. $60\sqrt{3}$ m ✓

Q5 Mathematics

In an army camp, there were provisions for 425 men for 30 days. However, 375 men attended the camp. How long did the provisions last?

A. 30 days

B. 35 days

C. 34 days ✓

D. 32 days

Q6 Mathematics

Find the mean height of persons from the following data.

Height (cm)	Number of persons
120	3
130	4
140	5
150	6
160	2

A. 150 cm

B. 145 cm

C. 160 cm

D. 140 cm ✓

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Q7 Mathematics

A man travels 360 km in 4 h, partly by air and partly by train. If he had travelled all the way by air, he would have saved $\frac{4}{5}$ of the time he travelled by train, and he would have arrived at his destination 2 h early. Find the distance he travelled by air.

A. 270 km ✓

B. 280 km

C. 290 km

D. 260 km

Q8 Mathematics

By selling cakes at ₹84 per dozen, a baker earns a profit of 12%. At what price must he sell each cake to earn a profit of 20% ?

A. ₹8.50

B. ₹7.50 ✓

C. ₹9.50

D. ₹10.50

Q9 Mathematics

What must be subtracted from each of the numbers 23, 40, 57 and 108 so that the remainders are in proportion?

A. 4

B. 2

C. 8

D. 6 ✓

Q10 Mathematics

Abir sells an article to Kunal at the profit of 15% and Kunal sells it to Amar at the profit of 10%. If Amar pays ₹5,060 for it, what was its original cost price?

A. ₹4,500

B. ₹6,000

C. ₹5,000

D. ₹4,000 ✓

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Q11 Mathematics

If $\frac{3\sqrt{5}-5}{3\sqrt{5}+5} = a + b\sqrt{5}$, then find the value of b.

A. $\frac{7}{2}$

B. $\frac{3\sqrt{5}}{2}$

C. $\frac{3}{2}$

D. $-\frac{3}{2}$ ✓

Q12 Mathematics

If $x^2 = y + z$, $y^2 = z + x$ and $z^2 = x + y$, then find the value of $\frac{1}{x+1} + \frac{1}{y+1} + \frac{1}{z+1}$.

A. 4

B. -1

C. 2

D. 1 ✓

Q13 Mathematics

Find the greatest number, which when divides 76, 151 and 226 leaves same remainder.

A. 75 ✓

B. 78

C. 70

D. 76

Q14 Mathematics

A sum is invested at compound interest payable annually. The interest in two successive years was ₹225 and ₹236.25. Find the rate of interest.

A. 4.5%

B. 4%

C. 5% ✓

D. 5.5%

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Q15 Mathematics

A rectangular courtyard is 18 m 72 cm long and 13 m 20 cm broad. It is to be paved with square tiles all of the same size. Find the least possible number of such tiles required.

A. 4290 ✓

B. 4295

C. 4292

D. 4294

Q16 Mathematics

In a ΔABC, if $2\angle A = 3\angle B = 6\angle C$, then find the value of $\angle C$.

A. $60°$

B. $30°$ ✓

C. $45°$

D. $90°$

Q17 Mathematics

What smallest fraction should be added to $3\frac{2}{3} + 6\frac{7}{12} + 4\frac{9}{36} + 5 + 7\frac{1}{12}$ to make the sum a whole number?

A. $\frac{13}{12}$

B. $\frac{5}{12}$ ✓

C. $\frac{11}{12}$

D. $\frac{7}{12}$

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Q18 Mathematics

Using BODMAS, simplify the following.

$\frac{7}{9} \times \frac{21}{5} \times 25\,(65^2 - 55^2)$

A. 98000 ✓

B. 84000

C. 86000

D. 42000

Q19 Mathematics

Find the smallest number which when diminished by 3 is divisible by 21, 24, 30 and 45.

A. 883

B. 860

C. 843 ✓

D. 980

Q20 Mathematics

The six digit number 87937A is divisible by 6 where A is the least natural number. Find the value of A.

A. 8

B. 4

C. 6

D. 2 ✓

Q21 Mathematics

Simplify the following.

$5 \times 0.5 \times 0.05 \times 0.005 \times 500$

A. 3125

B. 0.3125 ✓

C. 31.25

D. 0.003125

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Q22 Mathematics

Simplify the given expression $4\frac{1}{10} - \left[2\frac{1}{2} - \left\{\frac{5}{6} - \left(\frac{2}{5} + \frac{3}{10}\right)\right\}\right]$

A. $\frac{19}{15}$

B. $\frac{12}{25}$

C. $\frac{26}{15}$ ✓

D. $\frac{31}{25}$

Q23 Mathematics

The radius of a 80 cm wide road roller is 77 cm. Find the number of revolutions that the roller will take to cover an area of $96.8\ m^2$. [Take $\pi = \frac{22}{7}$]

A. 25 ✓

B. 20

C. 24

D. 22

Q24 Mathematics

The simple interest on a certain sum for 3 years at 8% per annum is ₹96 more than the simple interest on the same sum for 2 years at 9% per annum. Find the sum.

A. ₹1,800

B. ₹1,600 ✓

C. ₹1,500

D. ₹1,700

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Q25 Mathematics

Find the area of a trapezium whose parallel sides are 10 cm and 20 cm and non-parallel sides are equal to 10 cm.

A. $70\sqrt{3}$ cm^2

B. $75\sqrt{3}$ cm^2 ✓

C. $60\sqrt{3}$ cm^2

D. $65\sqrt{3}$ cm^2

Q26 Mathematics

Find the area of a rhombus whose perimeter is 164 cm and one diagonal is of length 80 cm.

A. 705 cm^2

B. 710 cm^2

C. 720 cm^2 ✓

D. 700 cm^2

Q27 Mathematics

A 300-m-long train crosses an electric pole in 5 s. Find the speed of the train.

A. 220 km/h

B. 200 km/h

C. 218 km/h

D. 216 km/h ✓

Q28 Mathematics

A tree broke at a height of 8 m from its foot and the broken upper part touches the ground at a point of 6 m from its foot. Find the height of the tree.

A. 15 m

B. 16 m

C. 18 m ✓

D. 24 m

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Q29 Mathematics

In the new budget, the price of petrol has risen by 20%. By how much percentage must a motorist reduce consumption of petrol so that his expenditure on it does NOT increase?

A. $16\frac{3}{4}\%$

B. $16\frac{4}{5}\%$

C. $16\frac{2}{3}\%$ ✓

D. $16\frac{1}{2}\%$

Q30 Mathematics

How many 3-digit numbers leave remainder 1 when divided by 7?

A. 130

B. 125

C. 128 ✓

D. 126

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The sum of the first six prime numbers is:

A. 28

B. 26

C. 41 ✓

D. 29

Q2 Mathematics

If a man crosses a street, 700 m long, in 7 min, then his speed is:

A. 7 km/h

B. 6 km/h ✓

C. 8 km/h

D. 9 km/h

Q3 Mathematics

What is the remainder when $7^{29} + 4$ is divided by 6?

A. 3

B. 7

C. 5 ✓

D. 1

Q4 Mathematics

When the price of a gun was increased by 25%, the number of guns sold decreased by 15%. What was the effect on the sales?

A. 6.25% increase ✓

B. 3.75% decrease

C. 10 % increase

D. 5.5% decrease

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Q5 Mathematics

The length and breadth of a square are increased by 30% and 20% respectively. The area of the resulting rectangle exceeds the area of the square by:

A. 25%

B. 40%

C. 56% ✓

D. 50%

Q6 Mathematics

A cylinder and a cone have the same height and the same radius as that of their base. The ratio of the volume of the cone to the volume of the cylinder is:

A. 3 : 2

B. 1 : 3 ✓

C. 3 : 1

D. 2 : 3

Q7 Mathematics

At a firing range, three shooters are firing at their respective targets. The first, the second and the third shooter hit their target once every 4 seconds, 5 seconds, and 6 seconds, respectively. If all of them hit their targets together at 10:00 am, then at what time will they hit their targets together again?

A. 10 : 04 am

B. 10 : 02 am

C. 10 : 03 am

D. 10 : 01 am ✓

Q8 Mathematics

X and Y together can finish a task in 20 days. Y alone can finish the same task in 25 days. In how many days can X alone finish the task?

A. 50

B. 125

C. 100 ✓

D. 75

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Q9 Mathematics

If $\sqrt{\frac{x}{144}} = \frac{27}{12}$, then find the value of x

A. 727

B. 724

C. 629

D. 729 ✓

Q10 Mathematics

If one angle of a parallelogram is 18° less than twice the smallest angle of the same parallelogram, then the largest angle of the parallelogram is:

A. 114° ✓

B. 120°

C. 108°

D. 104°

Q11 Mathematics

If the mean of the following data is k, then find the value of k.

Value	3	2	k	4	5
Frequency	k	2k	3k	4k	5k

A. 4 ✓

B. 3

C. 2

D. 6

Q12 Mathematics

What percent of 25 is the number 0.06?

A. 0.24% ✓

B. 0.20%

C. 0.22%

D. 0.18%

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Q13 Mathematics

Which number is 30% less than 70?

A. 43

B. 45

C. 49 ✓

D. 47

Q14 Mathematics

Find the value of $7-[3-\{7-(5-(4-3))\}]$

A. 7 ✓

B. 8

C. 9

D. 0

Q15 Mathematics

The LCM of $\frac{3}{2}$, $\frac{4}{6}$, $\frac{5}{8}$ and $\frac{6}{10}$ is:

A. 60

B. 30 ✓

C. $\frac{1}{60}$

D. $\frac{1}{30}$

Q16 Mathematics

Simple interest on a sum of money, at 5% per annum for 2 years, is ₹50. The compound interest on the same sum for the same period at the same interest rate is:

A. ₹51.40

B. ₹51.25 ✓

C. ₹51.35

D. ₹51.30

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Q17 Mathematics

If the total surface area of a cube is 864 m^2, then its volume is:

A. 1728 m^3 ✓

B. 1727 m^3

C. 1726 m^3

D. 1729 m^3

Q18 Mathematics

$\cos^2 31 + \cos^2 59$ is equal to:

A. $2\sin^2 31$

B. 0

C. 1 ✓

D. $2\cos^2 31$

Q19 Mathematics

Find the sum of the face values of 8 and 5 in the number 817354.

A. 17

B. 800050

C. 13 ✓

D. 40

Q20 Mathematics

By selling 200 pens, a shopkeeper gains the selling price of 40 pens. Find the gain percentage.

A. 25% ✓

B. 30%

C. 35%

D. 20%

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Q21 Mathematics

What is the least number which when increased by 7 is divisible by 16, 18, 24 and 28?

A. 1006

B. 1008

C. 1001 ✓

D. 9999

Q22 Mathematics

A sum of ₹800 is invested for 3 years at simple interest rate. The rates of interest for the 3 years are 6%, 8% and 10% per annum. Find the total amount of interest earned at the end of 3 years.

A. ₹185

B. ₹195

C. ₹188

D. ₹192 ✓

Q23 Mathematics

The supplement of 70° is:

A. 120°

B. 250°

C. 100°

D. 110° ✓

Q24 Mathematics

Find the face value of 7 in 765419.

A. 7×10^4

B. 7 ✓

C. 7×10^6

D. 7×10^5

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Q25 Mathematics

If $x^4 + \frac{1}{x^4} = 322$ and $x > 1$, then what is the value of $x^3 - \frac{1}{x^3}$?

A. 72

B. 78

C. 76 ✓

D. 74

Q26 Mathematics

A man incurs a loss of 15% by selling a radio for ₹510. At what price should he sell it in order to make a profit of 15%?

A. ₹670

B. ₹660

C. ₹680

D. ₹690 ✓

Q27 Mathematics

A certain number of men can finish a task in 70 days. If 10 more men are added to the existing staff, then the task can be finished in 10 days less. How many men were there originally?

A. 50

B. 70

C. 60 ✓

D. 40

Q28 Mathematics

Five bells begin to toll together and toll at intervals of 4, 6, 7, 8 and 12 seconds, respectively. After how many seconds, will they toll together again?

A. 170

B. 172

C. 166

D. 168 ✓

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Q29 Mathematics

If $\sin\theta + \text{cosec}\,\theta = \sqrt{5}$, then the value of $\sin^3\theta + \text{cosec}^3\theta$ is:

A. $3\sqrt{5}$

B. $\frac{1}{\sqrt{5}}$

C. 0

D. $2\sqrt{5}$ ✓

Q30 Mathematics

If $x + y = 75$ and $\sin x : \sin y = \frac{1}{\sqrt{2}} : \frac{1}{2}$, then $x : y$ is:

A. $3 : 1$

B. $2 : 3$

C. $1 : 3$

D. $3 : 2$ ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

By selling an article at 90% of the marked price, there is a loss of 7%. If the article is sold at the marked price, the percentage profit will be:

A. 3.33% ✓

B. 3.5%

C. 3.15%

D. 3.43%

Q2 Mathematics

Find the value of $\frac{7^{\frac{1}{5}}}{7^{\frac{1}{3}}}$

A. $7^{\frac{3}{5}}$

B. $7^{\frac{5}{3}}$

C. $7^{\frac{4}{5}}$

D. $7^{\frac{-2}{15}}$ ✓

Q3 Mathematics

If the difference between the exterior and the interior angles of a regular polygon is 60°, with an interior angle being greater than the corresponding exterior angle, then find the number of sides of the polygon.

A. 8

B. 5

C. 6 ✓

D. 7

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Q4 Mathematics

A train crosses a man on a platform in 10 s and crosses the platform of 260 m in length in 20 s. What is the length of the train?

A. 260 m ✓

B. 240 m

C. 280 m

D. 220 m

Q5 Mathematics

Solve the following.

$(0.032 \times 0.0032) + 0.00032 = ?$

A. 0.004224

B. 0.00004224

C. 0.0004224 ✓

D. 0.0004221

Q6 Mathematics

The HCF of two numbers is 5 and their LCM is 750. If one of the numbers is 125, find the other number.

A. 30 ✓

B. 32

C. 34

D. 38

Q7 Mathematics

The compound interest on ₹20,000 at 8% per annum is ₹3,328. The period in years is:

A. 3

B. 4

C. 2 ✓

D. 5

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Q8 Mathematics

A is 6 years older than B. 10 years ago, B's age was three quarters of A's age. Find the present age (in years) of A.

A. 28

B. 24

C. 38

D. 34 ✓

Q9 Mathematics

A room is 750 cm long and 525 cm wide. Its floor is to be paved with square tiles. What is the least number of tiles required?

A. 62

B. 42

C. 53

D. 50

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q10 Mathematics

The 10^{th} term of the Arithmetic Progression 2, 7, 12, . . . is:

A. 37

B. 47 ✓

C. 57

D. 27

Q11 Mathematics

A ladder is placed against a wall such that its foot is at a distance of 2.5 m from the wall and its top reaches the base of a window 6 m above the ground. Find the length of the ladder.

A. 6.3 m

B. 6.5 m ✓

C. 7.8 m

D. 7.5 m

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Q12 Mathematics

The cost of a pair of roller skates was ₹450. The sales tax charged was 5%. Find the bill amount.

A. ₹460

B. ₹480.50

C. ₹472.50 ✓

D. ₹470.50

Q13 Mathematics

The principal value of $\cot^{-1}\left(\frac{-1}{\sqrt{3}}\right)$ is:

A. $\frac{3\pi}{2}$

B. $\frac{\pi}{6}$

C. $\frac{2\pi}{3}$ ✓

D. $\frac{\pi}{3}$

Q14 Mathematics

How many cubes of side 3 cm can be formed by melting a cuboid of length 9 cm, breadth 6 cm and height 6 cm?

A. 12 ✓

B. 13

C. 14

D. 11

Q15 Mathematics

A train passes two bridges of lengths 600 m and 200 m in 80 s and 40 s respectively. The length of the train is:

A. 250 m

B. 180 m

C. 200 m ✓

D. 220 m

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Q16 Mathematics

Rahul bought a sweater and saved ₹200 when a discount of 25% was given. What was the price of the sweater before the discount?

A. ₹600

B. ₹400

C. ₹650

D. ₹800 ✓

Q17 Mathematics

A number when divided by 7 leaves a remainder 4. What will be the remainder when the square of the same number is divided by 7?

A. 4

B. 3

C. 2 ✓

D. 1

Q18 Mathematics

A number lies between the cubes of 11 and 12. If the number is divisible by twice of 80 and 6 both, what will be the number?

A. 1560

B. 1350

C. 1680

D. 1440 ✓

Q19 Mathematics

A sum of money amounts to 3 times the original sum in 15 years. In how many years will the original sum amount to 5 times of itself at the same rate of simple interest?

A. 20

B. 35

C. 30 ✓

D. 25

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Q20 Mathematics

In a school, there are 20 teachers who teach mathematics or physics. Of these, 12 teachers teach only mathematics and 4 teachers teach both physics and mathematics. How many teachers teach only physics?

A. 10

B. 16

C. 12 ✓

D. 14

Q21 Mathematics

A car completes a journey in 18 h covering the first half of the journey at a speed of 40 km/h and the second half of the journey at a speed of 50 km/h. Find the distance of the journey.

A. 800 km ✓

B. 700 km

C. 850 km

D. 810 km

Q22 Mathematics

The standard deviation of 12 values is 3. If each value is increased by 4, then find the variance of the new set of values.

A. 16

B. 9 ✓

C. 7

D. 25

Q23 Mathematics

The HCF of two numbers is 11 and their LCM is 330. If one of the numbers is 55, then find the other number.

A. 88

B. 77

C. 66 ✓

D. 99

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Q24 Mathematics

If ₹5, 000 becomes ₹5, 900 in one year, what will ₹8, 000 become at the end of 5 years at the same rate of simple interest?

A. ₹15,000

B. ₹15,200 ✓

C. ₹16,000

D. ₹16,200

Q25 Mathematics

The angles of depression of two houses of the same height from the top of a building are 45° and 30° towards the east. If the two houses are 50 m apart, what will be the height of the building in metres?

A. $50(\sqrt{3}+1)$

B. $45(\sqrt{3}-1)$

C. $35(\sqrt{3}-1)$

D. $25(\sqrt{3}+1)$ ✓

Q26 Mathematics

Find the area of a triangle formed by (1, 0), (–1, 0), (0, 1).

A. 2 sq. units

B. 1 sq. units ✓

C. 1.5 sq. units

D. 0 sq. units

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Q27 Mathematics

If $x + \frac{1}{x} = 5$

Then the value of $\frac{3x}{2x^2 + 2 - 5x}$ will be:

A. $\frac{5}{3}$

B. $\frac{2}{3}$

C. $\frac{3}{5}$ ✓

D. $\frac{2}{5}$

Q28 Mathematics

A sum of ₹10,000 is borrowed at a rate of simple interest 15% per annum. Find the interest to be paid at the end of two years.

A. ₹3,500

B. ₹2,000

C. ₹2,500

D. ₹3,000 ✓

Q29 Mathematics

In a building, there are 24 cylindrical pillars. The radius of each pillar is 28 cm and height is 4 m. Find the total cost of painting the curved surface area of all pillars at the rate of ₹8 per m^2.

A. ₹1,350.45

B. ₹1,354.78

C. ₹1,351.68 ✓

D. ₹1,352.98

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Q30 Mathematics

Find the LCM of 6, 72 and 120.

A. 360 ✓

B. 320

C. 280

D. 140

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If $\cot 35^\circ = 2 - \sqrt{3}$ then the value of $\tan 35^\circ \cot 55^\circ + \tan 55^\circ \cot 35^\circ$ is:

A. 13

B. 12

C. 15

D. 14 ✓

Q2 Mathematics

Find the gain percentage when the cost price is ₹950 and the selling price is ₹1,140.

A. 10%

B. 30%

C. 20% ✓

D. 40%

Q3 Mathematics

Find the arithmetic mean of the first 15 natural numbers.

A. 8 ✓

B. 15

C. 16

D. 9

Q4 Mathematics

What is the place value of 5 in the number 56789214?

A. 5×10^5

B. 5×10^7 ✓

C. 5×10^6

D. 5×10^4

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Q5 Mathematics

If the LCM of a and b is c, then their HCF is:

A. $\frac{bc}{a}$

B. $\frac{ab}{c}$ ✓

C. $\frac{ac}{b}$

D. $\frac{c}{ab}$

Q6 Mathematics

A alone can finish a task in 30 days. He works for 6 days on the same task and then B finishes it in 24 days. In how many days can A and B together finish the task?

A. 20

B. 15 ✓

C. 10

D. 25

Q7 Mathematics

Find the sum of the place value and the face value of 7 in the number 53736.

A. 777

B. 770

C. 707 ✓

D. 77

Q8 Mathematics

If the angles of a quadrilateral are in the ratio of 4 : 9 : 11 : 12, then the largest of these angles is:

A. 168°

B. 72°

C. 166°

D. 120° ✓

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Q9 Mathematics

The value of $3.14\dot{4}$ is:

A. $3\frac{12}{90}$

B. $3\frac{13}{90}$ ✓

C. $3\frac{14}{90}$

D. $3\frac{11}{90}$

Q10 Mathematics

The smallest number that is divisible by 10, 14 and 28, and is a perfect square, is:

A. 140

B. 19600

C. 4900 ✓

D. 18600

Q11 Mathematics

Mr. Cook sold a book at a profit of 14%. If he had sold it for ₹5.40 more, then he would have made a profit of 20%. Find the cost price of the book.

A. ₹120

B. ₹30

C. ₹90 ✓

D. ₹60

Q12 Mathematics

The minimum value of $4\sin^2\theta + 5\cos^2\theta$ is:

A. 0

B. 2

C. 4 ✓

D. 1

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Q13 Mathematics

If the difference between the interior and exterior angles of a polygon is 36°, then find the number of sides in the polygon.

A. 5 ✓

B. 7

C. 8

D. 6

Q14 Mathematics

If the radius of a circle is reduced by 25%, its area is reduced by:

A. 43.75% ✓

B. 50%

C. 56.25%

D. 6.25%

Q15 Mathematics

Find the value of x in the given equation.

$$\frac{\sqrt{2401}}{x} = \frac{x}{6.25}$$

A. 15.5

B. 17.5 ✓

C. 27.5

D. 7.5

Q16 Mathematics

Sachin covers a certain distance by car driving at 80 km/h and he returns to the starting point riding on a scooter at 50 km/h. Find his average speed for the whole journey up to 2 decimal places.

A. 62.42 km/h

B. 63.43 km/h

C. 60.26 km/h

D. 61.54 km/h ✓

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Q17 Mathematics

Ram alone can finish a task in 20 days while Shyam alone can finish it in 30 days. How many days will they take to finish the task if they work together?

A. 18

B. 14

C. 16

D. 12 ✓

Q18 Mathematics

If the side of a square is tripled, then the ratio of the area of the resulting square to that of original square is:

A. 9 : 2

B. 3 : 1

C. 9 : 1 ✓

D. 3 : 2

Q19 Mathematics

Find the greatest number that divides 128, 303 and 247, leaving remainders 4, 7 and 19, respectively.

A. 4 ✓

B. 6

C. 7

D. 5

Q20 Mathematics

The population of a town increases at the rate of 10% every year. The present population is 1,000. In how many years will the population become 1,331?

A. 2.5

B. 3.5

C. 2

D. 3 ✓

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Q21 Mathematics

If the price of tea increases by 20%, by what percentage should a household reduce its consumption of tea so that the budget remains the same?

A. $16\frac{2}{3}\%$ ✓

B. $14\frac{2}{3}\%$

C. $15\frac{2}{3}\%$

D. $13\frac{2}{3}\%$

Q22 Mathematics

If $y = \frac{x}{(2+a)^z}$, then z = ?

A. $\frac{\log_e(x-y)}{\log_e(2+a)}$

B. $\frac{\log_e\left(\frac{x}{y}\right)}{\log_e(2-a)}$

C. $\frac{\log_e\left(\frac{y}{x}\right)}{\log_e(2+a)}$

D. $\frac{\log_e\left(\frac{x}{y}\right)}{\log_e(2+a)}$ ✓

Q23 Mathematics

Find the compound interest when the principle is ₹6,000 at an interest of 10% per annum for 2 years.

A. ₹1,260 ✓

B. ₹1,230

C. ₹1,240

D. ₹1,250

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Q24 Mathematics

50% of 500 = ___ of 2500

A. 30%

B. 20%

C. 40%

D. 10% ✓

Q25 Mathematics

How many numbers between 1 and 700 are completely divisible by 17?

A. 45

B. 46

C. 42

D. 41 ✓

Q26 Mathematics

When 19^{300} is divided by 20, find the remainder.

A. 3

B. 1 ✓

C. 4

D. 2

Q27 Mathematics

If the sum of two numbers is 30 and the product is 50, then the sum of their reciprocals is:

A. $\frac{3}{5}$ ✓

B. $\frac{5}{3}$

C. $\frac{2}{5}$

D. $\frac{5}{2}$

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Q28 Mathematics

Find the value of $\frac{(3.17+9.12)^2+(3.17-9.12)^2}{3.17\times3.17+9.12\times9.12}$.

A. 2 ✓

B. 3

C. 1

D. 4

Q29 Mathematics

A profit of 20% is earned by selling an article for ₹2,400. If the same article were sold for ₹2,600, then the gain percentage would be:

A. 30% ✓

B. 35%

C. 25%

D. 20%

Q30 Mathematics

If $\sin(x-y)=\frac{\sqrt{3}}{2}$ and $\cos(x+y)=\frac{1}{2}$, where x and y are positive acute angles and $x \geq y$, then the value of x is:

A. 30°

B. 50°

C. 60° ✓

D. 70°

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The numerator of a fraction is 5 less than its denominator. If 2 is subtracted from the numerator and 2 is added to the denominator, the fraction becomes $\frac{2}{5}$. Find the original fraction.

A. $\frac{11}{13}$

B. $\frac{8}{13}$ ✓

C. $\frac{5}{7}$

D. $\frac{9}{11}$

Q2 Mathematics

A certain sum of money amounts to ₹2,613 in 6 years at 5% simple interest per annum. In how many years will it amount to ₹3,015 at the same rate?

A. 18 years

B. 10 years ✓

C. 12 years

D. 15 years

Q3 Mathematics

A dealer sells a table for ₹400, making a profit of 25%. He sells another table at a loss of 10% and on the whole he makes neither profit nor loss. How much (in ₹) did the second table cost him?

A. 850

B. 700

C. 750

D. 800 ✓

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Q4 Mathematics

Find the value of $\tan 1^\circ . \tan 2^\circ . \tan 3^\circ$ ..... $\tan 89^\circ$

A. $\sqrt{3}$

B. 0

C. 1 ✓

D. $\frac{1}{\sqrt{3}}$

Q5 Mathematics

Simplify the given expression.

$$\frac{5+5\times 5}{5\times 5+5} \times \frac{\frac{1}{5} \div (\frac{1}{5} \times \frac{1}{5})}{(\frac{1}{5} \times \frac{1}{5}) \div \frac{1}{5}} - \left(5 - \frac{1}{5}\right) \times \frac{10}{2}$$

A. 1 ✓

B. 2

C. 0

D. 3

Q6 Mathematics

If $\frac{2\sqrt{2}+\sqrt{7}}{2\sqrt{2}-\sqrt{7}} = x + y\sqrt{14}$, find the value of y.

A. 4 ✓

B. 0

C. 19

D. 15

Q7 Mathematics

5% more is gained by selling a cow for ₹1,010 than what is gained by selling it for ₹1,000. Find the cost price (in ₹) of the cow.

A. 200 ✓

B. 300

C. 400

D. 280

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Q8 Mathematics

An inlet pipe can fill a tank in 4 h and an outlet pipe can empty the tank in 6 h. By mistake, both the pipes are kept open. Find the number of hours in which the tank will be half-full.

A. 6 h ✓

B. 12 h

C. 8 h

D. 10 h

Q9 Mathematics

Simplify the given expression.

$$9 \times 0.9 \times 0.09 \times 0.009 \times \frac{1}{0.3} \times \frac{1}{0.03} \times \frac{1}{0.003}$$

A. 0.243

B. 2.43

C. 243 ✓

D. 24.3

Q10 Mathematics

Find the greatest possible length that can be used to measure exactly the lengths $3\frac{1}{2}$ m and $8\frac{3}{4}$ m.

A. $\frac{11}{4}$ m

B. $\frac{7}{4}$ m ✓

C. $\frac{3}{4}$ m

D. $\frac{9}{4}$ m

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Q11 Mathematics

How many numbers are there between 1000 and 3000 that are completely divisible by 7?

A. 286 ✓

B. 283

C. 284

D. 281

Q12 Mathematics

If $a + b + c = 0$, then find the value of $\frac{(a^2+b^2+c^2)^2}{a^2b^2+b^2c^2+c^2a^2}$

A. 0

B. 4 ✓

C. 1

D. 2

Q13 Mathematics

Find the time taken by a 450 m long train travelling at the speed of 80 km/h to cross a platform of length 150 m.

A. 27 s ✓

B. 25 s

C. 28 s

D. 24 s

Q14 Mathematics

What least number should be added to 3500 to make it exactly divisible by 42, 49, 56 and 63?

A. 28 ✓

B. 22

C. 24

D. 26

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Q15 Mathematics

Find the interest (in ₹) on ₹8,000 at 10% per annum compounded half yearly for $1\frac{1}{2}$ years.

A. 1,263

B. 1,260

C. 1,264

D. 1,261 ✓

Q16 Mathematics

If the height and the radius of a solid right circular cylinder are doubled, find the percentage increase in its volume.

A. 300%

B. 700% ✓

C. 400%

D. 600%

Q17 Mathematics

In a triangle the ratio of angles is 2 : 3 : 4. Find the difference between the greatest and the smallest angle.

A. 20°

B. 40° ✓

C. 60°

D. 0°

Q18 Mathematics

There is a square park of size 18 m in length. A road of width 3 m is constructed outside the square around it. Find the area of the road.

A. 350 m^2

B. 252 m^2 ✓

C. 352 m^2

D. 250 m^2

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Q19 Mathematics

If $a + b + c = 10$ and $ab + bc + ca = 31$, find the value of $a^2 + b^2 + c^2$

A. 36

B. 34

C. 38 ✓

D. 35

Q20 Mathematics

3 cubes each with side 16 cm are joined side by side in a line. Find the surface area of the cuboid so formed.

A. $3564\ cm^2$

B. $3588\ cm^2$

C. $3584\ cm^2$ ✓

D. $3600\ cm^2$

Q21 Mathematics

Find the sum of the mean, median and mode of the given data.

9, 35, 20, 25, 25, 15, 25

A. 47

B. 50

C. 72 ✓

D. 75

Q22 Mathematics

Simplify the given expression using BODMAS.

$$\frac{4}{11} \times \frac{121}{16} \times 24\,(75^2 - 55^2) \times \frac{1}{100}$$

A. 1716 ✓

B. 1726

C. 1736

D. 1746

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Q23 Mathematics

Find the value of D if $1216 - 32D = DDD$ is divisible by 8.

A. 2

B. 8 ✓

C. 4

D. 6

Q24 Mathematics

The given data is arranged in ascending order and its median is 17. Find the value of x.

8, 10, 12, 15, x, x + 2, 20, 25, 30, 32

A. 19

B. 18

C. 17

D. 16 ✓

Q25 Mathematics

A kite is flying with a thread of length 296 m, making an angle of elevation measuring 30° at a point of hand of a person of height 2m from the ground. Find the height of the kite from the ground.

A. 300 m

B. 200 m

C. 250 m

D. 150 m ✓

Q26 Mathematics

If the cost price of 15 notebooks is equal to the selling price of 12 notebooks, then the percentage gain or loss is _____.

A. 25% loss

B. 25% gain ✓

C. 20% gain

D. 20% loss

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Q27 Mathematics

A seven digit number 67843A2 is divisible by 11 where A is a single digit whole number. Find the value of A.

A. 6

B. 8 ✓

C. 7

D. 0

Q28 Mathematics

A certain sum of money is divided among A, B and C. A gets one-third of the amount. B gets thrice as much as what C gets and C gets ₹1,200 less than what A gets. Find the share (in ₹) of A.

A. 4,800

B. 2,400 ✓

C. 1,200

D. 3,600

Q29 Mathematics

A and B can finish a task in 18 days. B and C can finish the same task in 27 days. A, B and C together can finish it in 12 days. How much time A and C will take to finish it?

A. $14\frac{1}{2}$ days

B. $15\frac{1}{2}$ days

C. $12\frac{1}{2}$ days

D. $13\frac{1}{2}$ days ✓

Q30 Mathematics

Find the greatest possible length that can be used to measure exactly the lengths 7 m, 3 m 85 cm and 12 m 95 cm.

A. 85 cm

B. 65 cm

C. 35 cm ✓

D. 45 cm

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A bag contains ₹3,000, the notes of which are in the denominations of ₹50, ₹100 and ₹10. If the notes of ₹100, ₹50 and ₹10 are in the ratio of 5 : 8 : 10, then the number of the notes of ₹50 in the bag will be:

A. 16

B. 32

C. 24 ✓

D. 8

Q2 Mathematics

If $x = 7 + 4\sqrt{3}$. then find the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$

A. $4\sqrt{2}$

B. 6

C. $1 + \sqrt{2}$

D. 4 ✓

Q3 Mathematics

Find the least number by which 6250 should be multiplied, so that it becomes a perfect cube.

A. 15

B. 30

C. 20 ✓

D. 25

Q4 Mathematics

The lengths of three medians of a triangle are 3 cm, 6 cm and 5 cm. The area of the triangle is:

A. $\frac{\sqrt{405}}{3}$ cm^2

B. $\frac{\sqrt{345}}{3}$ cm^2

C. $\frac{4}{3}\sqrt{56}$ cm^2 ✓

D. $\frac{\sqrt{255}}{3}$ cm^2

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Q5 Mathematics

The internal measures of a cuboidal room are 12 m × 8 m × 4 m, with the height being 4 m. Find the total cost of whitewashing all four walls along with ceiling of the room, if the cost of white washing is ₹5 per sq. m.

A. ₹1180

B. ₹1380

C. ₹1080

D. ₹1280 ✓

Q6 Mathematics

If on a marked price, the difference between selling prices with a discount of 45% and two successive discounts of 30% and 20% is ₹84, then the marked price is _____.

A. ₹8,400 ✓

B. ₹2,000

C. ₹3,000

D. ₹4,500

Q7 Mathematics

What is the maximum number of tiles whose length and breadth are 10 cm and 8 cm respectively will be required to fit in a rectangular region whose length and breadth are respectively 352 cm and 100 cm?

A. 456

B. 352

C. 445

D. 440 ✓

Q8 Mathematics

A sum of ₹10,000 is borrowed at a rate of simple interest 15% per annum for 2 years. Find the amount to be paid at the end of two years.

A. ₹13,000 ✓

B. ₹15,000

C. ₹12,000

D. ₹11,000

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Q9 Mathematics

Find the LCM and HCF of 6 and 20.

A. 60, 3

B. 120, 2

C. 80, 2

D. 60, 2 ✓

Q10 Mathematics

There are two numbers such that the big number is obtained by adding 5 to the other. If the total of the two numbers is 19, find the product of those numbers.

A. 84 ✓

B. 24

C. 65

D. 95

Q11 Mathematics

If 2 L of water is evaporated on boiling from 8 L of sugar solution containing 4% sugar, find the percentage of sugar in the remaining solution.

A. 16%

B. $\frac{16}{3}\%$ ✓

C. 15%

D. $\frac{16}{5}\%$

Q12 Mathematics

In four consecutive prime numbers, the product of the last three is 7429 and that of the first three is 4199. The largest of these prime number is:

A. 37

B. 29

C. 23 ✓

D. 13

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Q13 Mathematics

The lengths of two sides of a triangle are 7 cm and 8 cm respectively and the measure of the angle included between these two sides is 60°. The length (in cm) of the third side of the triangle is:

A. $2\sqrt{14}$

B. 7.5

C. 9

D. $\sqrt{57}$ ✓

Q14 Mathematics

The principal value of $\sin^{-1}\frac{1}{\sqrt{2}}$ is:

A. $\frac{\pi}{2}$

B. $\frac{\pi}{6}$

C. $\frac{\pi}{4}$ ✓

D. $\frac{3\pi}{4}$

Q15 Mathematics

If $a^{\frac{1}{3}} = 6$, then find the value of $a^2 - 36a$

A. 7776

B. 38880 ✓

C. -180

D. 0

Q16 Mathematics

The selling price of a toy car is ₹540. If the profit made by shopkeeper is 20%, what will be the cost price of this toy car?

A. ₹350

B. ₹250

C. ₹450 ✓

D. ₹400

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Q17 Mathematics

The perimeter of an equilateral triangle is $36\sqrt{3}$ m. Find the height (in metres).

A. 12

B. 14

C. 16

D. 18 ✓

Q18 Mathematics

The sum of the reciprocals of the ages of two colleagues is nine times the difference of the reciprocals of their ages. If the ratio of the products of their ages to the sum of their ages is 100 : 9, Find their ages.

A. 20 years, 25 years ✓

B. 15 years, 10 years

C. 24 years, 45 years

D. 25 years, 4 years

Q19 Mathematics

When 0.434343..... is converted into a fraction, then the result will be:

A. $\frac{43}{100}$

B. $\frac{4.3}{0.1}$

C. $\frac{43}{9.9}$

D. $\frac{43}{99}$ ✓

Q20 Mathematics

Two trains start from stations A and B and travel towards each other at the speeds of 60 km/h and 70 km/h respectively. At the time of their meeting, the second train has travelled 100 km more than the first. The distance between A and B is:

A. 780 km

B. 1300 km ✓

C. 980 km

D. 1000 km

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Q21 Mathematics

Find the largest 4-digit number which is completely divisible by 66.

A. 6754

B. 9436

C. 9867

D. 9966 ✓

Q22 Mathematics

The sum of two numbers is 850 and their HCF is 25. A possible pair of such numbers is:

A. 225, 625 ✓

B. 300, 550

C. 350, 500

D. 250, 600

Q23 Mathematics

Salim bought an article for ₹784 which included GST of 12%. What was the price of the article before GST was added?

A. ₹700 ✓

B. ₹650

C. ₹550

D. ₹600

Q24 Mathematics

Write a Pythagorean triplet whose smallest member is 8.

A. 8, 18, 28

B. 8, 15, 17 ✓

C. 8, 15, 19

D. 8, 10, 12

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Q25 Mathematics

The ages of two persons differ by 15 years. If 5 years ago, the age of the older person was twice that of the younger one, then their present ages (in years) are:

A. 30, 15

B. 20, 5

C. 25, 10

D. 35, 20 ✓

Q26 Mathematics

If $\cot\left(\frac{\pi}{2}-\theta\right)=\frac{1}{\sqrt{3}}$, then find the value of $\cos\theta$.

A. $\frac{1}{2}$

B. $\frac{\sqrt{3}}{2}$ ✓

C. $\sqrt{3}$

D. $\frac{1}{\sqrt{3}}$

Q27 Mathematics

The speeds of three cars are in the ratio of 5 : 6 : 10. The time taken by each of them to travel the same distance is in the ratio of:

A. 6 : 5 : 10

B. 10 : 6 : 5

C. 10 : 5 : 6

D. 12 : 10 : 6 ✓

Q28 Mathematics

A survey of 40 children showed that 25% children liked playing football. How many children did not like playing football?

A. 38

B. 30 ✓

C. 35

D. 26

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Q29 Mathematics

A man travelled a distance of 28 km in 8 h. He travelled partly by foot at a speed of 2 km/h and partly on bicycle at a speed of 6 km/h. What was the distance (in km) travelled on foot?

A. 16

B. 18

C. 10 ✓

D. 12

Q30 Mathematics

Anita takes a loan of ₹5,000 at 15% per year as rate of simple interest. Find the interest she has to pay at the end of one year.

A. ₹700

B. ₹800

C. ₹725

D. ₹750 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

32 : 20, in its lowest terms will be _____.

A. 8 : 5 ✓

B. 16 : 10

C. 8 : 10

D. 24 : 15

Q2 Mathematics

In a computer game, a builder can build a wall in 20 hours while a destroyer can demolish such a wall completely in 50 hours. Both the builder and the destroyer were initially set to work together on level ground. But after 30 hours the destroyer was taken out. What was the total time taken to build the wall?

A. 32 hours 40 mins

B. 32 hours 20 mins

C. 33 hours 20 mins

D. 32 hours ✓

Q3 Mathematics

Solve the following:

$54 + [19 - \{15 - (6 - 16 \div 4 \times 8\}] = ?$

A. 62

B. 32 ✓

C. 40

D. 58

Q4 Mathematics

The square root of 90 will lie between _____.

A. 10 and 11

B. 8 and 9

C. 7 and 8

D. 9 and 10 ✓

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Q5 Mathematics

Solve the following:

15% of 22 = ?

A. 3.4

B. 3.2

C. 3.3 ✓

D. 3.5

Q6 Mathematics

$\frac{13}{18}$ of the residents of a housing society own cars and $\frac{48}{65}$ of the car owners have purchased covered parking space. If 136 of the residents parked in the open, how many residents were there in the society?

A. 900

B. 650

C. 720 ✓

D. 630

Q7 Mathematics

The points A, B and C lie on a circle with centre O. $\angle ACB = 46.5°$. What is the measure of $\angle AOB$ on the minor $\widehat{AB}$?

A. 93° ✓

B. 92°

C. 94°

D. 90°

Q8 Mathematics

Find the value of: $\frac{\cos 41}{\sin 49} + \frac{\sin 51}{\cos 39}$

A. 0

B. 1

C. 4

D. 2 ✓

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Q9 Mathematics

The perimeter of a rectangle is 96 m and its length is 27 m. Find its width.

A. 21 m ✓

B. 48 m

C. 42 m

D. 69 m

Q10 Mathematics

Three positive integers a, b and c are such that their average is 35 and $a \leq b \leq c$. If the median is (a + 18), then what is the lowest possible value of c?

A. 42

B. 39

C. 41 ✓

D. 40

Q11 Mathematics

If simple interest is offered per year on a sum of money invested for five years, the amount of money payable on maturity after the five years elapse is ₹2,340. However, if the sum was invested for only two years, the amount payable on maturity would be ₹2016. What was the original sum invested?

A. ₹2000/-

B. ₹1750/-

C. ₹1800/- ✓

D. ₹1600/-

Q12 Mathematics

A sum of money, invested for 4 years @ 5% simple interest, amounted to ₹150/- on maturity. What was the sum invested?

A. ₹175/-

B. ₹125/- ✓

C. ₹180/-

D. ₹120/-

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Q13 Mathematics

Parvez leaves his office everyday at 6 pm and reaches home at 7:30 pm One day he left his office at 6 pm but travelled a fourth of the distance at $\frac{4}{5}$ of the usual speed. At how many times his normal speed did Parvez travel the remaining part of the journey if he managed to reach home on time?

A. $\frac{16}{15}$

B. $\frac{10}{9}$

C. $\frac{12}{11}$ ✓

D. $\frac{6}{5}$

Q14 Mathematics

The sum of the prime numbers between 50 and 60 is _____.

A. 118

B. 114

C. 110

D. 112 ✓

Q15 Mathematics

Which of the numbers below is NOT a perfect square?

A. 16,384

B. 97,344

C. 23,102 ✓

D. 41,616

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Q16 Mathematics

A rectangle having 34 cm and 18 cm as its dimensions was reconstructed to make a rhombus having the same perimeter as that of the rectangle and 120° as one of its angles. The area of the rhombus, in cm^2, was _____.

A. $\frac{169\sqrt{3}}{3}$

B. $169\sqrt{3}$

C. $338\sqrt{3}$ ✓

D. $\frac{338\sqrt{3}}{3}$

Q17 Mathematics

How many factors of $2^7 \times 3^3 \times 5^4 \times 7$ are even?

A. 280 ✓

B. 320

C. 84

D. 40

Q18 Mathematics

The LCM of 3, 4 and x CANNOT be ____.

A. 36

B. 18 ✓

C. 24

D. 60

Q19 Mathematics

The lowest value of x which makes $\frac{136}{x-4}$ an integer is:

A. -268

B. 72

C. 140

D. -132 ✓

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Q20 Mathematics

What is the sum of $\frac{5}{2}$ and $\frac{2}{5}$?

A. $\frac{7}{7}$

B. $\frac{29}{10}$ ✓

C. $\frac{20}{7}$

D. $\frac{10}{7}$

Q21 Mathematics

The difference between the selling prices at a 14% profit and at a 10% loss while selling an article is ₹60. What is the cost price of the article?

A. ₹225/-

B. ₹250/- ✓

C. ₹235/-

D. ₹240/-

Q22 Mathematics

If $x + \frac{1}{x} = 3$, then $x^3 + \frac{1}{x^3} = ?$

A. 9

B. 18 ✓

C. 27

D. 36

Q23 Mathematics

14 people can build a wall in 12 days. Another set of 7 people, each only a fourth as efficient as those in the first group, will be able to complete such a wall in:

A. 84 days

B. 96 days ✓

C. 108 days

D. 120 days

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Q24 Mathematics

Solve the following:

$176 + 17.6 + 1.76 + 0.176 + 0.0176 = ?$

A. 195.5336

B. 195.5536 ✓

C. 195.5356

D. 195.5556

Q25 Mathematics

If $\sin x - 3\cos x = \sqrt{3}\ \cos x$, then the value of $\cot x$ is:

A. $3 - \sqrt{3}$

B. $3 + \sqrt{3}$

C. $\sqrt{3}$

D. $\frac{3 - \sqrt{3}}{6}$ ✓

Q26 Mathematics

If the volume of a sphere is given as 4851 cm^3, then find its diameter. [Use $\pi = \frac{22}{7}$]

A. 28 cm

B. 21 cm ✓

C. 10.5 cm

D. 42 cm

Q27 Mathematics

Sonam was given some money to take care of her travel during a 15-day sales drive she had to undertake. However, she had to increase her stay by another 9 days and as a result her average daily travel allowance went down by ₹75. What was the amount that was sanctioned to her in the beginning?

A. ₹2,700

B. ₹3,000 ✓

C. ₹2,750

D. ₹2,850

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Q28 Mathematics

₹100 was invested @ 10% compound interest per year for two years. If the rate of interest was increased to 20% for the same period, how many more rupees would the investor get as interest?

A. ₹23/- ✓

B. ₹24/-

C. ₹20/-

D. ₹22/-

Q29 Mathematics

Rahul had to appear for a test in four subjects. In the first three subjects the maximum marks were 50 each, in which Rahul secured 60% on an average. In the fourth subject Rahul scored 54 marks and his overall percentage rose to 64%. What were the maximum marks in the fourth subject?

A. 75 ✓

B. 84

C. 60

D. 80

Q30 Mathematics

If $\frac{288}{x}$ and $\frac{108}{x}$ are natural numbers, then what is the maximum value of x?

A. 54

B. 42

C. 48

D. 36 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A godown is in the form of a cuboid of measures 60 m × 40 m × 30 m. How many cuboidal boxes can be stored in it if the volume of one box is 0.8 m^3 ?

A. 90,000 ✓

B. 85,000

C. 78,800

D. 80,000

Q2 Mathematics

If a vessel gets filled by 15 glasses of milk where capacity of each glass is 1.5 L, how many glasses are required to fill the same vessel if the capacity of each glass is 0.5 L?

A. 40

B. 45 ✓

C. 50

D. 55

Q3 Mathematics

What percentage of profit on cost price equals 20% of profit on selling price?

A. 28%

B. 30%

C. 25% ✓

D. 22%

Q4 Mathematics

A started a journey at 1:00 p.m. at a speed of 40 km/h. B started from the same spot and in the same direction at 1:40 p.m. at a speed of 50 km/h. How many minutes will B take to catch up with A?

A. 150 min

B. 120 min

C. 140 min

D. 160 min ✓

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Q5 Mathematics

What is the value of the following expression?

$$\frac{\cos 3x + \cos x}{\sin 3x - \sin x}$$

A. $\tan x$

B. $\sin x$

C. $\cos x$

D. $\cot x$ ✓

Q6 Mathematics

An amount of money is to be divided between A, B and C in the ratio of 5 : 2 : 8. If the difference between the shares of A and C is ₹7,740, then what will be the total amount?

A. ₹28,976

B. ₹38,700 ✓

C. ₹35,875

D. ₹30,983

Q7 Mathematics

A sum of ₹20,000 is borrowed by Heena for 2 years at an interest of 8% compounded annually. Find the compound interest.

A. ₹3,428

B. ₹3,328 ✓

C. ₹3,028

D. ₹3,628

Q8 Mathematics

If A : B = 1 : 3, B : C = 5 : 4 and C : D = 2 : 3, then the value of A : B : C : D will be:

A. 4 : 9 : 12 : 16

B. 3 : 8 : 9 : 12

C. 4 : 12 : 18 : 20

D. 5 : 15 : 12 : 18 ✓

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Q9 Mathematics

If the length and the perimeter of a rectangle are in the ratio of 3 : 20, then its length and breadth will be in the ratio of:

A. 3 : 7 ✓

B. 3 : 6

C. 3 : 5

D. 3 : 4

Q10 Mathematics

Find the number of bricks measuring 25 cm in length, 5 cm in breadth and 20 cm in height for a wall 40 m long, 80 cm broad and 6 m in height.

A. 75898

B. 78986

C. 76800 ✓

D. 74524

Q11 Mathematics

The LCM of two positive integers is thrice the larger number. The difference of the smaller number and the HCF of the two numbers is 6. The smaller number is:

A. 9 ✓

B. 5

C. 11

D. 7

Q12 Mathematics

From a point Y on a level ground, the angle of elevation of the top of a lamp post is 45°. If the distance of point Y from the foot of the lamp post is 80 m, the height of the lamp post will be:

A. 70 m

B. 80 m ✓

C. 82 m

D. 78 m

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Q13 Mathematics

If $\tan\theta + \cot\theta = 6$, then find the value of $\tan^2\theta + \cot^2\theta$

A. 54

B. 34 ✓

C. 44

D. 24

Q14 Mathematics

Waheeda bought an air cooler for ₹3,300 including a tax of 10%. Find the price of the air cooler before tax was added.

A. ₹2,900

B. ₹2,800

C. ₹3,000 ✓

D. ₹3,300

Q15 Mathematics

A sample of milk from a vessel contains 4% water. What quantity of pure milk should be added to 8 L of milk in the vessel to reduce the water content to 2%?

A. 8 L ✓

B. 7 L

C. 7.5 L

D. 6.5 L

Q16 Mathematics

The HCF of two even numbers should be at least _____.

A. 0

B. 1

C. 4

D. 2 ✓

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Q17 Mathematics

Which of the following rational number lies between $\frac{1}{4}$ and $\frac{1}{2}$.

A. $\frac{1}{8}$

B. $\frac{3}{5}$

C. $\frac{3}{8}$ ✓

D. $\frac{1}{6}$

Q18 Mathematics

How much does one need to add to $\frac{1}{2}$ to get 2?

A. $\frac{3}{2}$ ✓

B. $\frac{1}{-1}$

C. $\frac{1}{2}$

D. $\frac{5}{3}$

Q19 Mathematics

How many numbers between 1 and 100 are exactly divisible by 6 and 8 both?

A. 5

B. 6

C. 7

D. 4 ✓

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Q20 Mathematics

The sum of the numerator and denominator of a fraction is 11. If the numerator is decreased by 1, the fraction becomes $\frac{1}{4}$. Find the fraction.

A. $\frac{3}{8}$ ✓

B. $\frac{2}{9}$

C. $\frac{4}{7}$

D. $\frac{5}{6}$

Q21 Mathematics

Ameesha can complete a task by herself in 14 days, while it takes Bhavya 35 days to complete it alone. Together with Chitra, they can complete the task in 6 days. How many days will Chitra need to complete the task alone?

A. 43

B. 28

C. 14

D. 15 ✓

Q22 Mathematics

Find the relation between x and y such that the point (x, y) is equidistant from (6, 2) and (4, 6).

A. $x + 2y = 3$

B. $2x - y = 3$

C. $2x + y = -3$

D. $x - 2y = -3$ ✓

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Q23 Mathematics

The sum of two numbers is 66 and their HCF and LCM are 3 and 315 respectively. The sum of the reciprocals of the numbers will be:

A. $\frac{56}{315}$

B. $\frac{22}{315}$ ✓

C. $\frac{66}{315}$

D. $\frac{3}{315}$

Q24 Mathematics

30 ml paint is required to paint a circular plate of 20 cm radius. How much paint is required to paint a similar plate of radius 80 cm?

A. 360 ml

B. 480 ml ✓

C. 300 ml

D. 450 ml

Q25 Mathematics

If 330 pencils were distributed among Rajesh, Suresh and Chandan in the ratio of $\frac{1}{4} : \frac{2}{3} : \frac{1}{3}$ respectively then how many pencils did Chandan get?

A. 78

B. 88 ✓

C. 56

D. 48

Q26 Mathematics

HCF and LCM of two numbers are 5 and 210 respectively. If the numbers are between 25 and 40, the sum of the numbers will be:

A. 55

B. 60

C. 65 ✓

D. 50

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Q27 Mathematics

P can run 250 m in 25 s and Q can run the same distance in 30 s. By what distance is P ahead of Q after 4.5 s, if both start the race at the same time?

A. 6.9 m

B. 8.4 m

C. 9.6 m

D. 7.5 m ✓

Q28 Mathematics

The difference between 48% and 38% of a number is 354. What is 58% of that number?

A. 2034.6

B. 1987.56

C. 1893.78

D. 2053.2 ✓

Q29 Mathematics

A wire in the form of a circle of radius 56 m is cut and again bent in the form of a square. What is the measure of the diagonal of the square?

A. $85\sqrt{3}$ m

B. $90\sqrt{2}$ m

C. $80\sqrt{2}$ m

D. $88\sqrt{2}$ m ✓

Q30 Mathematics

An aquarium is in the form of a cuboid whose external measures are 80 cm × 30 cm × 40 cm. The base, side faces and back face are to be covered with a coloured paper. Find the area of the paper needed?

A. 6000 cm^2

B. 8000 cm^2 ✓

C. 8050 cm^2

D. 8080 cm^2

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

15 men can complete a task in 30 days. In how many days can 20 men complete that task?

A. 24

B. 28.5

C. 22.5 ✓

D. 26

Q2 Mathematics

The sum of 4 consecutive odd numbers is 160. Find the smallest number.

A. 37 ✓

B. 27

C. 25

D. 35

Q3 Mathematics

A merchant sold his goods for ₹171 at a profit percent equal to cost price. What was the cost price (in ₹)?

A. 98

B. 70

C. 78

D. 90 ✓

Q4 Mathematics

In a farmer's house, there are Chickens and goats. The total number of their heads is 42 and the total number of their legs is 138. Find the number of Chickens.

A. 15 ✓

B. 18

C. 22

D. 20

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Q5 Mathematics

यदि तीन धनात्मक संख्याओं का अनुपात 3 : 7 : 8 है और उनके वर्गों का योगफल 7808 है, तो उनमें से सबसे छोटी संख्या ज्ञात कीजिए।

A. 27

B. 24 ✓

C. 36

D. 30

Q6 Mathematics

Find $\sqrt{\frac{1521}{1849}}$

A. $\frac{39}{43}$ ✓

B. $\frac{32}{33}$

C. $\frac{37}{56}$

D. $\frac{29}{23}$

Q7 Mathematics

ABC is a triangle. BI and CI are angle bisectors of $\angle ABC$ and $\angle ACB$. $\angle BAC = 45°$. Find the measure of $\angle BIC$.

A. $120°$

B. $112.5°$ ✓

C. $118.5°$

D. $135°$

Q8 Mathematics

A number consists of 3 digits whose sum is 18 and the middle digit is equal to the sum of the other two. If the number increases by 297 when its digits are reversed, then what is the number?

A. 585

B. 495

C. 486

D. 396 ✓

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Q9 Mathematics

A car can go 150 km with 20 L of petrol. How far (in km) can it go with 30 L of petrol?

A. 160

B. 200

C. 225 ✓

D. 175

Q10 Mathematics

Find the area of a rhombus whose diagonals are of lengths 10 cm and 8.2 cm.

A. 41 cm^2 ✓

B. 37 cm^2

C. 39 cm^2

D. 35 cm^2

Q11 Mathematics

एक फूलदान का क्रय मूल्य ₹120 है। यदि दुकानदार इसे 5% की हानि पर बेचता है, तो इसका विक्रय मूल्य (₹ में) क्या होगा?

A. 125

B. 126

C. 115

D. 114 ✓

Q12 Mathematics

The length of a rectangle is three-fifths of the radius of a circle. The radius of the circle is equal to twice the side of a square, whose area is 3025 sq. units. The breadth of the rectangle is one-fifth of the side of the square. What is the area (in sq. units) of the rectangle?

A. 689

B. 305

C. 726 ✓

D. 708

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Q13 Mathematics

Find the smallest 4-digit number which when divided by 2, 3 and 5 leaves a remainder of 1 in each case?

A. 1041

B. 1091

C. 1001

D. 1021 ✓

Q14 Mathematics

If $\sin(A-B)=\frac{1}{2}$ and $\cos(A+B)=\frac{1}{2}$ with $0^\circ < (A+B) \leq 90^\circ$, $A > B$, then find the measure of A and B.

A. $25^\circ, 20^\circ$

B. $40^\circ, 35^\circ$

C. $45^\circ, 15^\circ$ ✓

D. $35^\circ, 15^\circ$

Q15 Mathematics

The ages of A and B are in the ratio of 5 : 3. After 5 years the ratio of their ages will be 10 : 7. What is the difference between present ages of A and B(in years)?

A. 6 ✓

B. 3

C. 4

D. 5

Q16 Mathematics

Two numbers are in the ratio of 11 : 19. If each one is subtracted by 7, then the ratio of the new numbers becomes 5 : 9. Find the absolute difference between the actual numbers.

A. 45

B. 78

C. 56 ✓

D. 34

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Q17 Mathematics

If the simple interest for 7 years is equal to 56% of the principal, it will be equal to the principal after:

A. 12 years 6 months ✓

B. 7 years 6 months

C. 10 years 9 months

D. 9 years 8 months

Q18 Mathematics

Two-fifth of seven-seventeenth of three-fifth of a number is 84. Find 40% of that number.

A. 850

B. 340 ✓

C. 280

D. 570

Q19 Mathematics

There is a regular hexagon of side 5 cm. Find its area.

A. $\frac{75\sqrt{3}}{2}$ cm^2 ✓

B. $36\sqrt{3}$ cm^2

C. $25\sqrt{3}$ cm^2

D. $\frac{50\sqrt{3}}{3}$ cm^2

Q20 Mathematics

A deposited ₹8,000 in a bank at 8% per annum simple interest. B deposited ₹6,000 at 10% compound interest per annum. After 3 years the difference between their interest will be:

A. ₹68

B. ₹66 ✓

C. ₹88

D. ₹78

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Q21 Mathematics

A chord of length 24 cm is at a distance of 5 cm from the centre of a circle. The radius of the circle is _____ cm.

A. 10

B. 13 ✓

C. 12

D. 14

Q22 Mathematics

The total measure of angles in a triangle is:

A. 360°

B. 270°

C. 90 °

D. 180° ✓

Q23 Mathematics

Income and expenditure of a person are in the ratio of 9 : 5. If the income of the person is ₹27,000, then find his savings.

A. ₹13,564

B. ₹10,000

C. ₹12,000 ✓

D. ₹9,678

Q24 Mathematics

Two trains 136 m and 185 m in length respectively are running in opposite directions, one at a speed of 70 km/h and the other at a speed of 65 km/h. In what time will they be completely clear of each other from the moment they meet?

A. 9.67 s

B. 8.56 s ✓

C. 7.43 s

D. 4.78 s

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Q25 Mathematics

The points A (1, 2), B (3, 4) and C (4, 1) are the vertices of a triangle which is:

A. scalene

B. isosceles ✓

C. right-angled

D. equilateral

Q26 Mathematics

What is the 50^{th} term of Arithmetic Progression 3, 8, 13, 18, 23, ……..?

A. 267

B. 150

C. 248 ✓

D. 345

Q27 Mathematics

18 years is the average age of 36 boys and their professor. The average becomes 17 years if we leave the professor out. What is the age (in years) of the professor?

A. 54 ✓

B. 34

C. 44

D. 64

Q28 Mathematics

Find the HCF of $\frac{2}{9}, \frac{16}{81}, \frac{32}{117}$ and $\frac{54}{189}$.

A. $\frac{4}{6459}$

B. $\frac{8}{8483}$

C. $\frac{2}{7371}$ ✓

D. $\frac{4}{1899}$

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Q29 Mathematics

If the numerator of a fraction is increased by 30% and its denominator is decreased by 35%, the value of the fraction becomes $\frac{3}{15}$. Find the original fraction.

A. $\frac{3}{5}$

B. $\frac{1}{5}$

C. $\frac{3}{10}$

D. $\frac{1}{10}$ ✓

Q30 Mathematics

If a positive number is subtracted from its square, we get 812. Find the number.

A. 25

B. 23

C. 29 ✓

D. 27

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Q1 Mathematics

What will the value of the following expression be?

$$\left(\frac{6+3}{3}\right) - 5 \times (4+5)$$

A. 24

B. –42 ✓

C. –24

D. 42

Q2 Mathematics

How many factors of $2^2 \times 3^1 \times 5^2 \times 7^1$ are divisible by 50 but not by 100?

A. 4 ✓

B. 12

C. 16

D. 8

Q3 Mathematics

John, Johnny and Janardan can finish a task in a field in 6, 12, and 24 days, respectively. In how many days will they finish the task working together?

A. $2\frac{3}{7}$ days

B. $6\frac{3}{7}$ days

C. $3\frac{3}{7}$ days ✓

D. $5\frac{3}{7}$ days

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Q4 Mathematics

What is the ratio of volumes of two spheres where the curved surface areas are in the ratio of 1 : 4?

A. $1 : 4$

B. $8 : 1$

C. $1 : 8$ ✓

D. $8 : 13$

Q5 Mathematics

What is the compound ratio of 45 : 75, 3 : 5, 51 : 68 and 256 : 81?

A. $\frac{64}{75}$ ✓

B. $\frac{128}{75}$

C. $\frac{75}{32}$

D. $\frac{32}{45}$

Q6 Mathematics

What will the value of the following expression be?

$20 - [15 - \{4 - (8 - 6 + 3)\}]$

A. 8

B. 4 ✓

C. 5

D. 6

Q7 Mathematics

The angle of elevation of a lamp post changes from 30° to 60° when a person walks 30 m towards it. Find the height of the lamp post.

A. $\sqrt{3}$ m

B. $5\sqrt{3}$ m

C. $15\sqrt{3}$ m ✓

D. $3\sqrt{3}$ m

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Q8 Mathematics

A path around the inner side of a rectangular park measuring 37 m × 30 m occupies 570 m^2. What is the width of the path?

A. 10 m

B. 15 m

C. 5 m ✓

D. 28 m

Q9 Mathematics

Big Mart is offering 5% discount on card payment. How much percentage above cost price should the marked price be so as to make a profit of 10%?

A. $14\frac{16}{19}\%$

B. $16\frac{14}{19}\%$

C. $15\frac{5}{19}\%$

D. $15\frac{15}{19}\%$ ✓

Q10 Mathematics

If ABCD is a cyclic quadrilateral and ABC is an equilateral triangle find the angle of CDA.

A. 45°

B. 120° ✓

C. 90°

D. 60°

Q11 Mathematics

If $x + \frac{1}{x} = 2$, then the value of $x^2 + \frac{1}{x^2} = ?$

A. 3

B. 1

C. 4

D. 2 ✓

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Q12 Mathematics

In an election a candidate with 37% votes loses by a difference of 520000 votes to the winning candidate. What is the total number of votes cast in that election with two contestants?

A. 1700000

B. 2200000

C. 1500000

D. 2000000 ✓

Q13 Mathematics

Narendra finishes a job in 10 days. Amit completes the same job in 12 days. How many days will it take for both of them to finish the job while working together?

A. $5\frac{5}{11}$ ✓

B. $6\frac{5}{11}$

C. $5\frac{6}{11}$

D. $6\frac{6}{11}$

Q14 Mathematics

What will the value of the following be (correct to three decimal points)?

160.342 –32.124

A. 128.340

B. 128.337

C. 128.242

D. 128.218 ✓

Q15 Mathematics

If a shopkeeper added 20% on the cost price as marked price and gave 20% discount, then how much was his profit or loss percent?

A. 6% loss

B. 4% profit

C. 6% profit

D. 4% loss ✓

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Q16 Mathematics

What is the cost price of articles sold for ₹390 if 20% is the total gain?

A. ₹525

B. ₹340

C. ₹425

D. ₹325 ✓

Q17 Mathematics

An amount becomes eight-fifth of the original amount in 5 years at what percentage rate of simple interest per annum?

A. 11

B. 15

C. 12 ✓

D. 13

Q18 Mathematics

Find the HCF of

$12 \times 15, 15 \times 21, 21 \times 12$

A. 9 ✓

B. 27

C. 3

D. 1

Q19 Mathematics

If $\sqrt{2916} = 54$ then what is the value of the following?

$\sqrt{29.16} + \sqrt{0.2916} + \sqrt{0.002916} + \sqrt{0.00002916}$

A. 6.00

B. 5.9994 ✓

C. 5.90

D. 5.999

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Q20 Mathematics

The points A, B and C lie on a circle with centre O. The $\angle ACB = 47.5^\circ$. What is the $\angle AOB$ on the minor $\overset{\frown}{AB}$?

A. 92°

B. 95° ✓

C. 94°

D. 93°

Q21 Mathematics

What is the value of $\frac{4+\sqrt{2}}{\sqrt{2}+1}$?

A. $2-3\sqrt{2}$

B. $3\sqrt{2}-2$ ✓

C. $3\sqrt{2}$

D. $3\sqrt{2}+2$

Q22 Mathematics

What is the total number of odd and even divisors of 120, respectively?

A. 16, 0

B. 4, 12 ✓

C. 8, 8

D. 12, 4

Q23 Mathematics

The average of five students in a class test is 39.20 and the average of three of them is 41. What is the average of the remaining two students?

A. 39.5

B. 37.5

C. 36.5 ✓

D. 38.5

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Q24 Mathematics

Sita can clean a hotel in 20 days. Rita can clean the same hotel in 30 days. How many days will they take to clean the hotel together?

A. 15 days

B. 12 days ✓

C. 9 days

D. 18 days

Q25 Mathematics

If a : b :: 3 : 4 then the value of the expression $\frac{5a-3b}{7a+2b}$ is:

A. $\frac{3}{29}$ ✓

B. $\frac{29}{3}$

C. $\frac{7}{29}$

D. $\frac{7}{3}$

Q26 Mathematics

What is the sum of $\frac{1}{3}$, $\frac{4}{3}$ and $\frac{3}{4}$?

A. 2

B. $\frac{29}{12}$ ✓

C. $\frac{27}{12}$

D. $\frac{26}{12}$

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Q27 Mathematics

How many poles will be covered by a train in 4 hours if the train is running at a speed of 45 km/hr, given that the poles on the railway track are 50 m apart and the train crosses a pole at the beginning of its journey.

A. 3606

B. 3636

C. 3600

D. 3601 ✓

Q28 Mathematics

A square is inscribed in a circle which is inscribed in an equilateral triangle. If one side of the triangle is x, then the area of square is:

A. $\frac{1}{9}x^2$

B. $\frac{1}{2}x^2$

C. $\frac{1}{3}x^2$

D. $\frac{1}{6}x^2$ ✓

Q29 Mathematics

Narendra's mother is four times as old as Narendra. Four years ago, his mother was six times as old as Narendra was. What are their Present ages?

A. 7 years, 28 years

B. 10 years, 40 years ✓

C. 5 years, 20 years

D. 20 years, 80 years

Q30 Mathematics

What is the distance of a vehicle from a tower of 150 m, if the angle of depression to the vehicle is 45°?

A. 125 m

B. 150 m ✓

C. 175 m

D. 200 m

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If $x^3 + \frac{1}{x^3} = 18$, then what will be the value of $x + \frac{1}{x}$?

A. 4

B. 1

C. 9

D. 3 ✓

Q2 Mathematics

If the selling price of an article is 3 times the discount offered and if the percentage of the discount is equal to the percentage profit, find the ratio of the discount offered to the cost price.

A. 7 : 11

B. 7 : 6

C. 7 : 12

D. 5 : 12 ✓

Q3 Mathematics

The possible value of x in the equation $\sqrt{\frac{x}{1-x}} + \sqrt{\frac{1-x}{x}} = \frac{25}{12}$ is:

A. $\frac{19}{25}$ or $\frac{6}{25}$

B. $\frac{8}{25}$ or $\frac{17}{25}$

C. $\frac{12}{25}$ or $\frac{13}{25}$

D. $\frac{9}{25}$ or $\frac{16}{25}$ ✓

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Q4 Mathematics

How many numbers less than 10000 are there which are exactly divisible by 21, 35 and 63?

A. 34

B. 30

C. 32

D. 31 ✓

Q5 Mathematics

A, B and C begin together to move around a circular stadium and they complete their revolutions in 42 s, 63 s and 84 s respectively. After how much time will they come together at the starting point?

A. 256 s

B. 452 s

C. 152 s

D. 252 s ✓

Q6 Mathematics

If ∇ stands for operation "adding the first number to thrice the second number", then the value of (4∇5)∇6 will be:

A. 35

B. 37 ✓

C. 54

D. 114

Q7 Mathematics

The difference between the compound interest and the simple interest accrued, at the same rate of interest, on an amount of ₹16,000 in 2 years was ₹1,000. What was the rate of interest percent per annum?

A. 25% ✓

B. 50%

C. 10%

D. 12%

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Q8 Mathematics

What is the value of the following expression?

$$\frac{\sqrt{225}}{14} \times \frac{\sqrt{196}}{22} \times \frac{\sqrt{484}}{15}$$

A. 14

B. 1 ✓

C. 3

D. 2

Q9 Mathematics

The mean of the values 1, 2, 3, 4, …, n with respective frequencies 1, 2, 3, …, n is:

A. $\frac{n-1}{2}$

B. $\frac{2n+1}{3}$ ✓

C. $\frac{2n-1}{3}$

D. $\frac{n+1}{2}$

Q10 Mathematics

Two persons A and B start a journey from the same point at the speeds of 3 km/h and 4 km/h respectively. If they move in the same direction, then what will be the distance between them after 6 h?

A. 6 km ✓

B. 9 km

C. 4 km

D. 3 km

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Q11 Mathematics

The speeds of three trains are in the ratio of 2 : 3 : 5. The amount of time taken by these trains to travel the same distance is in the ratio of:

A. $\frac{1}{2} : \frac{1}{3} : \frac{1}{5}$ ✓

B. $2 : 3 : 4$

C. $6 : 12 : 18$

D. $2 : 3 : 5$

Q12 Mathematics

The angles of a quadrilateral are in the ratio of 1 : 3 : 4 : 7. What is the difference between the largest and the smallest angle?

A. 144° ✓

B. 120°

C. 140°

D. 145°

Q13 Mathematics

For a symmetric distribution, the empirical relationship between mean, median and mode is:

A. $\text{Mode} - \text{Mean} = 3(\text{Mean} - \text{Median})$

B. $\text{Mean} = \text{Median} = \text{Mode}$ ✓

C. $\text{Mean} > \text{Median} > \text{Mode}$

D. $\text{Mode} - \text{Mean} = 3(\text{Median} - \text{Mean})$

Q14 Mathematics

If $(1 + \tan A)(1 + \tan B) = 2$, then what will be the value of $\tan(A + B)$?

A. 0

B. -2

C. 1 ✓

D. 2

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Q15 Mathematics

A vendor purchases an article for ₹500 and sells it for ₹550. What is the percentage gain?

A. 5%

B. 20%

C. 15%

D. 10% ✓

Q16 Mathematics

Rupert purchases a second-hand TV for ₹4,600, spends some money on its repairs, and then sells it for ₹5,406, thereby earning a profit of 6%. How much did Rupert spend on the repairs?

A. ₹500 ✓

B. ₹600

C. ₹400

D. ₹450

Q17 Mathematics

Solve the following.

$$\left(1+\frac{1}{x}\right)\left(1+\frac{1}{x+1}\right)\left(1+\frac{1}{x+2}\right)\left(1+\frac{1}{x+3}\right)=?$$

A. $\frac{x+4}{x}$ ✓

B. $\frac{1}{x}$

C. $x+4$

D. $1+\frac{1}{x+4}$

Q18 Mathematics

Four persons A, B, C and D completed a task in $\frac{2}{3}$ h, $\frac{3}{4}$ h, $\frac{4}{5}$ h and $\frac{1}{5}$ h respectively. Who among the following took the highest amount of time to complete the task?

A. A

B. B

C. C ✓

D. D

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Q19 Mathematics

The rate at which a sum becomes 2 times of itself in 10 years at simple interest is:

A. 15%

B. 25%

C. 10% ✓

D. 20%

Q20 Mathematics

If $x + y + z = 0$, then what will be the value of $\frac{x^2}{yz} + \frac{y^2}{zx} + \frac{z^2}{xy}$?

A. $\frac{x^2y^2z^2}{x}$

B. $x^2 + y^2 + z^2$

C. 3 ✓

D. $\frac{3x^2 + 3y^2 + 3z^2}{x}$

Q21 Mathematics

Atulit buys an old bicycle for ₹4,000 and spends ₹400 towards its repairs. If he sells the bicycle for ₹5,000, his percentage gain is:

A. $13\frac{1}{11}\%$

B. $7\frac{13}{12}\%$

C. $7\frac{13}{11}\%$

D. $13\frac{7}{11}\%$ ✓

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Q22 Mathematics

The value of $\sqrt{10+\sqrt{221+\sqrt{12+\sqrt{16}}}}$ is:

A. 6

B. 3

C. 5 ✓

D. 4

Q23 Mathematics

The value of $\frac{tan45°-tan30°}{1+tan45°tan30°}$ is :

A. $\sqrt{3-2}$

B. 1

C. $2+\sqrt{3}$

D. $2-\sqrt{3}$ ✓

Q24 Mathematics

What is the value of the following expression?

$103-[144\div(12\times12)+5+12\div(6-2)+10]$

A. 84 ✓

B. 90

C. 85

D. 86

Q25 Mathematics

The value of $\frac{(5.4)^3-0.064}{(5.4)^2+2.16+0.16}$ is:

A. 3.6

B. 3

C. 5 ✓

D. 8

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Q26 Mathematics

60% of 40% of 32% of an amount is ₹432. What is the amount (in ₹)?

A. 5,525

B. 5,605

C. 5,625 ✓

D. 5,555

Q27 Mathematics

Four cows are tethered to the four corners of a square field of length 28 m so that each cow can just touch the two cows in the adjacent corners. If the grass in the area inside the square field that was accessible to the cows was enough to feed them for 22 days, for how many days would the grass that is beyond the reach of these cows be able to feed them if someone cuts it and leaves it inside the grazable parts? [Use $\pi = 22/7$]

A. 7

B. 5

C. 4

D. 6 ✓

Q28 Mathematics

The value of $\sqrt{0.04} + \sqrt{1.44} + \sqrt{1.69} + \sqrt{0.0009}$ is:

A. 2.03

B. 10.3

C. 2.73 ✓

D. 1.70

Q29 Mathematics

A, B and C can complete a task in 36, 54 and 72 days respectively. Together they started the task but A left 8 days before the completion of the task while B left 12 days before the completion. The number of days for which C worked is:

A. 24 ✓

B. 40

C. 28

D. 32

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Q30 Mathematics

The two unequal sides of a rectangle are in the ratio of 3 : 4. If the perimeter is 42 cm, then the length of diagonal will be:

A. 30 cm

B. 15 cm ✓

C. 25 cm

D. 35 cm

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The LCM of x and y is 2079 and their HCF is 27. If x = 189, what will be the value of y?

A. 167

B. 197

C. 267

D. 297 ✓

Q2 Mathematics

The measure of an angle is one half of its supplementary angle. Find its measure.

A. 30°

B. 90°

C. 60° ✓

D. 120°

Q3 Mathematics

A bowl contains 9 blue balls, 7 white and 5 black balls. If 2 balls are drawn in one go, then the probability of exactly one ball being white is:

A. $\frac{7}{15}$ ✓

B. $\frac{1}{14}$

C. $\frac{7}{21}$

D. $\frac{7}{14}$

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Q4 Mathematics

What is the place value of 3 in 367892141?

A. 3×10^{4}

B. 3×10^{7}

C. 3×10^{5}

D. 3×10^{8} ✓

Q5 Mathematics

What is the value of $(6+4)\times\frac{4}{2}+5-3$?

A. 12

B. 22 ✓

C. 24

D. 42

Q6 Mathematics

How many factors of $2^3\times3^3\times5^4\times7^2$ are divisible by 50 but not by 100?

A. 42

B. 40

C. 36 ✓

D. 38

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Q7 Mathematics

What is the value of

$\frac{7}{9} - \frac{11}{12} + \frac{13}{16} - \frac{1}{8}$?

A. $\frac{79}{144}$ ✓

B. $\frac{150}{144}$

C. $\frac{144}{79}$

D. $\frac{34}{144}$

Q8 Mathematics

What is the remainder of function $4a^3 - 12a^2 + 14a - 3$ when it is divided by $\frac{a-1}{2}$?

A. $-\frac{2}{3}$

B. $-\frac{3}{2}$

C. $\frac{2}{3}$

D. $\frac{3}{2}$

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q9 Mathematics

In a circle, two chords of lengths x and y subtend the angles of $60°$ and $90°$ at the center respectively. Which of the following is correct in this scenario?

A. $y = \sqrt{2}x$ ✓

B. $y = 2x$

C. $x = 2y$

D. $y = \sqrt{2x}$

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Q10 Mathematics

If the value of $\frac{1}{36.18}$ is 0.0276, then what is the value of $\frac{1}{0.0003618}$?

A. 2760 ✓

B. 276.0

C. 27.60

D. 2.76

Q11 Mathematics

A cube of volume 324 cm^3 is molded into a cuboid whose length, width and height are in the ratio 3 : 2 : 2. Find the length of the cuboid.

A. 6 cm

B. 12 cm

C. 9 cm ✓

D. 7.5 cm

Q12 Mathematics

The sum of cost prices of two bikes is ₹1,00,000. One bike was sold at a profit of 20% and the second one was sold at a loss of 20%. If the selling prices are same, what is the cost price of the first bike sold?

A. ₹60,000

B. ₹35,000

C. ₹50,000

D. ₹40,000 ✓

Q13 Mathematics

A train service got disrupted due to an accident after a travel of 30 km. The speed was reduced to four-fifth of the original speed. This caused it a delay of 45 min. If the accident had happened 18 km farther, it would have been running late for 36 min. What was the original speed of the train?

A. 30 km/h ✓

B. 60 km/h

C. 50 km/h

D. 40 km/h

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Q14 Mathematics

What is the maximum value of a given item per kg out of the given years of the given table:-

Year	Quantity (in kg)	Value (in ₹)
1993	110	230
1994	95	210
1995	125	340
1996	130	430

A. 3.3 ✓

B. 2.7

C. 2.21

D. 2.09

Q15 Mathematics

If 50L of liquid containing 20% spirit is added with 10L of water then what would be the percentage of spirit in resulting mixture?

A. $12\frac{1}{2}\%$

B. 20%

C. $16\frac{2}{3}\%$ ✓

D. $33\frac{1}{3}\%$

Q16 Mathematics

What is the number of divisors of 120?

A. 16 ✓

B. 19

C. 15

D. 17

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Q17 Mathematics

What is the value of $\frac{(6 \times 2)}{(8 - 1 + 5)}$?

A. 1 ✓

B. 6

C. 2

D. 9

Q18 Mathematics

What is the value of $\sqrt{75} + \sqrt{147}$?

A. $5\sqrt{3}$

B. $7\sqrt{3}$

C. $\frac{12}{\sqrt{3}}$

D. $12\sqrt{3}$ ✓

Q19 Mathematics

X can work as fast as Y and Z together. X and Y together can finish the same task 3 times as fast as Z. If all three working together can finish the task in 15 days, how many days, will Z take to finish the task?

A. 70

B. 80

C. 60 ✓

D. 90

Q20 Mathematics

From a watch tower of 200 m height, angles of depression of two cliffs in a horizontal line through the base of the tower are 45° and 30°. Find the distance between the cliffs if they are on the same side.

A. $\frac{200}{(1 - \sqrt{3})}$ m

B. $200\sqrt{3}$ m

C. $200(1 - \sqrt{3})$ m

D. $\frac{200}{\sqrt{3}}$ m

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

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Q21 Mathematics

A sum of money, invested for 8 years on 5% per annum simple interest, amounted to ₹175 on maturity. What was the sum invested?

A. ₹120

B. ₹125 ✓

C. ₹140

D. ₹175

Q22 Mathematics

What is the greatest number which divides 13, 26 and 39 and gives the remainders as 1, 2 and 3 respectively?

A. 4

B. 6

C. 12 ✓

D. 2

Q23 Mathematics

If $\cos\theta + \sec\theta = \sqrt{3}$, then the value of $\cos^3\theta + \sec^3\theta$ is:

A. $2\sqrt{3}$

B. $\frac{1}{\sqrt{3}}$

C. $3\sqrt{3}$

D. 0 ✓

Q24 Mathematics

12 people can sweep the floor in 4 days with 12 brooms. In how many days can 8 people sweep the floor with 8 brooms?

A. 6 ✓

B. 5

C. 1

D. 7

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Q25 Mathematics

If the length of a rectangle is increased by 70%, what would be the percentage decrease (correct to nearest integer) in the width to maintain the same area?

A. 61%

B. 60%

C. 59%

D. 58%

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q26 Mathematics

A Man sold 2 articles for ₹4,000 each, gained 15% on one and lost 15% on the other. What is the total gain or loss rounded to the nearest integer?

A. ₹200 gain

B. ₹190 loss

C. ₹184 loss ✓

D. ₹175 gain

Q27 Mathematics

18 skilled workers can complete a task in 12 days while 24 semi-skilled workers need 15 days to complete the same task. 12 skilled workers started the task but 3 of them left after a few days. How many semi-skilled workers should replace the 3 skilled ones who left so that the task can be completed in stipulated time?

A. 5 ✓

B. 4

C. 7

D. 6

Q28 Mathematics

The speeds of three cars are in the ratio of 2 : 3 : 4. The ratio of respective time taken by these cars to travel the same distance is:

A. 2 : 4 : 6

B. 6 : 4 : 3 ✓

C. 6 : 5 : 3

D. 1 : 2 : 3

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Q29 Mathematics

In a given population, 20% of the population is affected with asthma out of which 90% of asthma patients used to work in flour mills. If 30% of the total population was working in flour mills, then what will be the percentage of the people working in flour mills who are suffering from asthma?

A. 60% ✓

B. 30%

C. 40%

D. 50%

Q30 Mathematics

If the sum of three numbers is zero, then which of the options below will always be equal to the value of the sum of the cubes of those numbers?

A. one

B. three times the product of the three numbers ✓

C. product of the three numbers

D. zero

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If $\cos x + \frac{1}{\cos x} = 2$ then find the value of $\cos^n x + \frac{1}{\cos^n x}$

A. 8

B. 6

C. 4

D. 2 ✓

Q2 Mathematics

7 orange trees, 28 apple trees and 42 mangoes trees have to be planted in rows such that each row contains the same number of trees of one variety only. Minimum number of rows in which the trees may be planted is:

A. 14

B. 5

C. 12

D. 11 ✓

Q3 Mathematics

What minimum value should be assigned to 'x' so that 2346x45 is exactly divisible by 9?

A. 2

B. 3 ✓

C. 5

D. 9

Q4 Mathematics

The LCM of $\sqrt{36}$ and $\sqrt{64}$ is:

A. 640

B. 72

C. 360

D. 24 ✓

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Q5 Mathematics

The number 93248x6 is divisible by 11. The digit x is equal to:

A. 5

B. 8

C. 2

D. 7 ✓

Q6 Mathematics

If $x + \frac{1}{x} = 4$, then find the value of $x^2 + \frac{1}{x^2}$

A. 16

B. 14 ✓

C. 12

D. 18

Q7 Mathematics

If a selling price of ₹36 results in a 10% discount on a list price, what selling price will result in a 20% discount on the list price?

A. ₹36

B. ₹50

C. ₹32 ✓

D. ₹60

Q8 Mathematics

If $\cot 3\theta \cot 6\theta = 1$, then the value of $\tan 15\theta$ will be:

A. $-\sqrt{3}$

B. 0

C. $-\frac{1}{\sqrt{3}}$ ✓

D. $3\sqrt{3}$

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Q9 Mathematics

In a division sum, the divisor is 2 times the quotient and 6 times the remainder. If the remainder is 8, find out the value of the dividend.

A. 1160 ✓

B. 408

C. 240

D. 840

Q10 Mathematics

What is the LCM of 22, 24, 48 and 16

A. 48

B. 176

C. 528 ✓

D. 64

Q11 Mathematics

The perimeter of an equilateral triangle is 36 m and the length of its altitude is 6 m. The area of the triangle is:

A. $36\ m^2$ ✓

B. $18\ m^2$

C. $24\ m^2$

D. $12\ m^2$

Q12 Mathematics

If $a\tan\alpha = b$, then the value of $\cos\alpha$ will be:

A. $\frac{a}{a^2 + b^2}$

B. $\frac{b}{a}$

C. $\frac{a}{\sqrt{a^2 + b^2}}$ ✓

D. $\frac{b}{a^2 + b^2}$

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Q13 Mathematics

If one angle of a parallelogram is 48° less than twice the smallest angle, then the measure of the largest angle of the parallelogram will be:

A. 104° ✓

B. 140°

C. 128°

D. 120°

Q14 Mathematics

The pair of equations $2^{x+y} = 16$ and $64^{x-y} = 2$ has :

A. Unique solution $x = \frac{23}{12}, y = \frac{25}{12}$

B. Infinite solutions

C. No common solution

D. Unique solution $x = \frac{25}{12}, y = \frac{23}{12}$ ✓

Q15 Mathematics

Find the least common multiple of the numbers 36, 72 and 144.

A. 108

B. 144 ✓

C. 220

D. 110

Q16 Mathematics

The price of mobile is first decreased by 20% and then increased by 10%. The net change in the price will be:

A. 15%

B. 14%

C. 10%

D. 12% ✓

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Q17 Mathematics

If the length, breadth and height of a room are 15 m, 20 m, and 30 m respectively, then what will be the area of four walls of the room?

A. $1800\ m^2$

B. $2400\ m^2$

C. $2100\ m^2$ ✓

D. $2800\ m^2$

Q18 Mathematics

In a class of 100 students, the mean marks obtained in a certain subject is 25 and in another class of 50 students, the mean marks obtained in the same subject is 70. The mean marks obtained by the students of both the classes taken together is:

A. 30

B. 60

C. 40 ✓

D. 25

Q19 Mathematics

If a, b, c, d are four numbers, such that the LCM of a and b is b, the LCM of b and c is c and the LCM of c and d is d, then the LCM of a, b, c and d will be:

A. d ✓

B. $\frac{(a + b + c + d)}{4}$

C. a

D. c

Q20 Mathematics

The difference between the simple interest recovered from two different sources on ₹1,200 for 3 years is ₹10.80. The difference between their rates of interest is:

A. 0.03%

B. 0.6%

C. 0.3% ✓

D. 1%

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Q21 Mathematics

A person invested $\frac{2}{3}$ of his capital at the rate of 6%, $\frac{1}{5}$ at the rate of 10% and the remainder at the rate of 15%. If his annual income is ₹600, the capital will be:

A. ₹4,500

B. ₹5,000

C. ₹2,500

D. ₹7,500 ✓

Q22 Mathematics

10 men can complete a task in 18 days. After 6 days, 5 more men join. In how many days the remaining work will be completed?

A. 6

B. 12

C. 10

D. 8 ✓

Q23 Mathematics

1200 apples were distributed among a group of boys. Each boy got thrice many of the apples as the number of boys in that group. The number of boys in the group was:

A. 20 ✓

B. 15

C. 25

D. 40

Q24 Mathematics

If an article is sold at 150% profit, then the ratio of its cost price to its selling price will be:

A. 2 : 5 ✓

B. 1 : 3

C. 1 : 1

D. 2 : 3

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Q25 Mathematics

If the diagonals of two squares are in the ratio of 3 : 5, then their areas will be in the ratio of:

A. 9 : 25 ✓

B. 13 : 25

C. 2 : 5

D. 15 : 25

Q26 Mathematics

In an examination, 80% students passed in Physics, 70% students passed in Chemistry while 15% students failed in both the subjects. If 325 students passed in both the subjects, find the total number of students who appeared in the examination.

A. 450

B. 550

C. 500 ✓

D. 200

Q27 Mathematics

Two natural numbers are in the ratio of 6 : 8 and their product is 768. The smaller number is:

A. 12

B. 24 ✓

C. 32

D. 8

Q28 Mathematics

15 persons can fill 35 boxes in 7 days. How many persons are required to fill 65 boxes in 5 days?

A. 33

B. 36

C. 49

D. 39 ✓

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Q29 Mathematics

The ratio of an interior angle to the exterior angle of a regular polygon is 4 : 1. The number of sides of the polygon is:

A. 12

B. 10 ✓

C. 5

D. 6

Q30 Mathematics

A man travelled from a school to a park at a speed of 20 km/h and walked back at a speed of 5 km/h. If the whole journey took 5 h, find the distance of the school from the park.

A. 40 km

B. 80 km

C. 30 km

D. 20 km ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the number whose four-fifth is more than its three-fourth by 4.

A. 70

B. 80 ✓

C. 100

D. 90

Q2 Mathematics

Jaya and Hema can clean an apartment in 30 days. Hema and Sushma can do the same task in 40 days, while Jaya and Sushma take 60 days to do it. How many days will it take all three of them working together to clean the apartment?

A. $15\frac{2}{3}$

B. $\frac{2}{3}$

C. $6\frac{2}{3}$

D. $26\frac{2}{3}$ ✓

Q3 Mathematics

If the ratio of the heights of two cones is 1 : 4 and the diameters are in ratio 4 : 5 then what is the ratio of their volumes?

A. 4 : 25 ✓

B. 13 : 25

C. 7 : 17

D. 5 : 9

Q4 Mathematics

An amount doubles itself at compound interest in five years. In how many years will it amount to sixteen times itself?

A. 25

B. 15

C. 16

D. 20 ✓

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Q5 Mathematics

What will be the value after simplifying this continued fraction?

$$\cfrac{1}{2+\cfrac{1}{3+\cfrac{1}{1+\cfrac{1}{4}}}}$$

A. $\frac{43}{5}$

B. $\frac{43}{19}$

C. $\frac{5}{19}$

D. $\frac{19}{43}$ ✓

Q6 Mathematics

What is the remainder when 2^{20} is divided by 3?

A. 2

B. 3

C. 0

D. 1 ✓

Q7 Mathematics

A man got a discount of 10% on sugar at Big Mart which allowed him to buy 25 kg more for ₹225/-. What is the discounted price and the original price of the sugar per kg?

A. 50p, ₹2

B. 70p, ₹2

C. 80p, ₹3

D. 90p, ₹1 ✓

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Q8 Mathematics

Solve the following:

$240 \div 8 \times 512 \div 4$

A. 3940

B. 3340

C. 3840 ✓

D. 4040

Q9 Mathematics

Find the variance of the following data points:

6, 7, 5, 9, 12, 15

A. $\frac{37}{6}$

B. $\frac{67}{6}$

C. $\frac{81}{3}$

D. $\frac{37}{3}$ ✓

Q10 Mathematics

The least number which on being divided by 2, 3, 4, 5 and 6 leaves a remainder of 1 but no remainder when divided by 7 is:

A. 322

B. 315

C. 308

D. 301 ✓

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Q11 Mathematics

Find the quotient of $0.5 \div 0.71$ (correct to three decimal places)

A. 0.714

B. 0.706

C. 0.704 ✓

D. 0.705

Q12 Mathematics

An article is bought for ₹250. What should be its selling price so as to gain 10% as profit?

A. ₹275 ✓

B. ₹290

C. ₹250

D. ₹260

Q13 Mathematics

The annual increase in percentage of a population is 5% and the present number of people is 16,000. What will be the population in three years?

A. 29,448

B. 24,448

C. 18,522 ✓

D. 20,448

Q14 Mathematics

What will be the value of the following expression?

$0.25 \div 0.0025 \times 0.025 \times 25$

A. 625

B. 62.5 ✓

C. 0.625

D. 6.25

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Q15 Mathematics

Find the angle of elevation of a $200\sqrt{3}$ m tower's top from a point 200 m away from its base.

A. 30°

B. 90°

C. 45°

D. 60° ✓

Q16 Mathematics

The population of a town is 10,000. If the male population increases by 5% and the female population by 10%, the population will become 10,800. How much of the town's present population is female?

A. 5000

B. 8000

C. 6000 ✓

D. 7000

Q17 Mathematics

Which fraction bears the same ratio to $\frac{1}{27}$ as $\frac{3}{11}$ does to $\frac{5}{9}$?

A. $\frac{1}{15}$

B. $\frac{1}{99}$

C. $\frac{1}{27}$

D. $\frac{1}{55}$ ✓

Q18 Mathematics

A train that is 110 m in length is running at 90 km/h. How much time will the train take to cross a bridge that is 180 m in length?

A. 11.6 s ✓

B. 9.6 s

C. 10.6 s

D. 7.6 s

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Q19 Mathematics

What is the value of $\frac{\sqrt{5}+1}{\sqrt{5}-1}$?

A. $\frac{3-\sqrt{5}}{2}$

B. $\frac{\sqrt{5}}{2}$

C. $\frac{3\sqrt{5}}{2}$

D. $\frac{3+\sqrt{5}}{2}$ ✓

Q20 Mathematics

Solve the following:

$1800 \div (11 \times 24 \div 8 \times 3 - 69)^2$

A. 2 ✓

B. 3

C. 5

D. 4

Q21 Mathematics

What is Ram's average speed if he goes from Point X to Point Y at 8 km/hr and returns from Point Y to Point X at 12 km/hr?

A. 8.6 km/hr

B. 10.6 km/hr

C. 9.6 km/hr ✓

D. 15.6 km/hr

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Q22 Mathematics

In a triangle ABC, incenter is at O. Find angle BAC if angle BOC=110°.

A. 50°

B. 20°

C. 40° ✓

D. 30°

Q23 Mathematics

Three bells started tolling together. Each of them then tolls after 0.25 sec, 0.1 sec and 0.125 sec. After how many seconds will they again toll together?

A. 0.1

B. 0.2

C. 0.5 ✓

D. 0.6

Q24 Mathematics

Which of the following options gives the value of $1999^2 - 999^2$?

A. 3000000

B. 2988000

C. 2998000 ✓

D. 1000000

Q25 Mathematics

Two-fifth of Narendra's salary is equal to Amit's salary and seven-ninth of Amit's salary is equal to Arun's salary. If the sum of the salaries is ₹770, what are the respective salaries of Narendra, Amit and Arun (in ₹)?

A. 450, 180, 140 ✓

B. 450, 140, 180

C. 180, 140, 450

D. 180, 450, 140

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Q26 Mathematics

If one of the roots of the equation $x^2 - 19x + 88 = 0$ is 8, then what is the other root?

A. 17

B. 12

C. 13

D. 11 ✓

Q27 Mathematics

Ram and Shyam can finish a task in 6 days working together. Shyam can finish that task alone in 8 days. How much time will Ram alone take to finish it?

A. 15 days

B. 12 days

C. 18 days

D. 24 days ✓

Q28 Mathematics

Due to a cyclone, a tree is broken and makes an angle of 30° with the ground. The distance between the root and the tip of the tree that touches the ground is 10 m. What is the height of the tree?

A. $\sqrt{3}$ m

B. $20\sqrt{3}$ m

C. $\frac{10}{\sqrt{3}}$ m

D. $10\sqrt{3}$ m ✓

Q29 Mathematics

What is the area of the largest square that is inscribed in a semicircle of radius 10 cm?

A. 70 cm^2

B. 90 cm^2

C. 80 cm^2 ✓

D. 120 cm^2

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Q30 Mathematics

What is the square root of the following?

$(x^2 - 14x + 49)(x^2 + 6x + 9)$

A. $(x - 4)(x + 9)$

B. $(x - 7)(x + 3)$ ✓

C. $(x - 1)(x + 17)$

D. $(x - 3)(x + 8)$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

What must be subtracted from each of the numbers 26, 44, 56 and 104 so that the remainders are in proportion?

A. 6

B. 9

C. 8 ✓

D. 7

Q2 Mathematics

What is the sum of the cubes of the natural numbers from 5 to 14?

A. 10920

B. 10925 ✓

C. 10930

D. 10935

Q3 Mathematics

X and Y can complete a task in 28 days and 20 days, respectively. X started the task alone. After 4 days Y joined him till the completion of the task. How long did the task last?

A. 10 days

B. 12 days

C. 8 days

D. 14 days ✓

Q4 Mathematics

If $\sin\theta - \text{cosec}\,\theta = \sqrt{2}$, then the value of $\sin^3\theta - \text{cosec}^3\theta$ is:

A. $2\sqrt{3}$

B. 0

C. $\frac{1}{\sqrt{2}}$

D. $5\sqrt{2}$ ✓

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Q5 Mathematics

Two numbers are in the ratio of 9 : 11. If 6 added to each number, then the ratio becomes 6 : 7. Find the greater number.

A. 22 ✓

B. 19

C. 25

D. 28

Q6 Mathematics

If the length, breadth and height of a room are 20 m, 25 m and 35 m, respectively, then what will be the total surface area of the four walls of the room?

A. $3145\ m^2$

B. $3140\ m^2$

C. $3150\ m^2$ ✓

D. $3155\ m^2$

Q7 Mathematics

The sum of two numbers is 40 and their product is 60. The sum of their reciprocals is:

A. $\frac{1}{2}$

B. $\frac{2}{3}$ ✓

C. $\frac{3}{2}$

D. $\frac{3}{4}$

Q8 Mathematics

The difference between the greatest and the smallest six-digit numbers is:

A. 888888

B. 899999 ✓

C. 988888

D. 999999

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Q9 Mathematics

The sum of two numbers is 72. Their HCF and LCM are 2 and 102, respectively. The sum of the reciprocals of the same two numbers is:

A. $\frac{5}{17}$

B. $\frac{6}{17}$ ✓

C. $\frac{7}{19}$

D. $\frac{8}{19}$

Q10 Mathematics

The lengths of 2 adjacent sides of a square are increased by 35% and 25%. The area of the resulting rectangle exceeds the area of the square by:

A. 69.75%

B. 70.75%

C. 67.75%

D. 68.75% ✓

Q11 Mathematics

If $x : y = 4 : 3$, then the value of $x^3 - y^3 : x^3 + y^3$ is:

A. 36 : 91

B. 38 : 91

C. 39 : 91

D. 37 : 91 ✓

Q12 Mathematics

What is the smallest five-digit number formed by using the digits 2, 3, 4, 0, 5?

A. 20345 ✓

B. 23045

C. 20435

D. 02345

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Q13 Mathematics

Sohan decreased his expenses by 25%. Later, he decreased them further by 10%. By what percentage did his expenses decrease altogether?

A. 32.5% ✓

B. 34.5%

C. 33.5%

D. 31.5%

Q14 Mathematics

Karan works twice as fast as Shyam. Working together, they can complete a task in 20 days. In how many days will Karan alone complete the same task?

A. 28 days

B. 26 days

C. 30 days ✓

D. 32 days

Q15 Mathematics

The angles of a quadrilateral are in the ratio of 5 : 8 : 10 : 13. The smallest of these angles is:

A. 50° ✓

B. 55°

C. 45°

D. 35°

Q16 Mathematics

If $\sec\theta - \operatorname{cosec}\theta = 0$, then the value of $2\sin 2\theta - 3\cos 2\theta$ is:

A. $\frac{1}{2}$

B. 2 ✓

C. 1

D. -1

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Q17 Mathematics

If $x = 12$ and $y = 7$, then the value of $\left(\frac{x^2 + y^2 - xy}{x^3 + y^3}\right)$ is:

A. $\frac{2}{19}$

B. $\frac{1}{19}$ ✓

C. $\frac{1}{2}$

D. $\frac{1}{5}$

Q18 Mathematics

The HCF and LCM of two numbers are 60 and 420, respectively. If the first number is divided by 2, then the quotient is 60. The second number is:

A. 150

B. 190

C. 170

D. 210 ✓

Q19 Mathematics

If one angle of a parallelogram is $28°$ less than thrice the smallest angle, then the largest angle of the parallelogram is:

A. $126°$

B. $124°$

C. $122°$

D. $128°$ ✓

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Q20 Mathematics

X and Y can finish a task in 15 days and 20 days, respectively. The capacity of Z is $\frac{5}{2}$ times that of X. Working together, in how many days will X, Y and Z finish the same task?

A. $3\frac{9}{17}$ days ✓

B. $3\frac{8}{17}$ days

C. $3\frac{7}{17}$ days

D. $3\frac{6}{17}$ days

Q21 Mathematics

The capacity of two pots is 132 litres and 69 litres, respectively. Find the maximum capacity of a container that can exactly measure the content of the two pots.

A. 3040 cc

B. 3060 cc

C. 3000 cc ✓

D. 3080 cc

Q22 Mathematics

The difference between the compound interest and the simple interest on a principal sum of ₹24,000 in 2 years at same rate of interest is ₹60. The rate of interest is:

A. 7%

B. 6%

C. 8%

D. 5% ✓

Q23 Mathematics

A sum of money becomes ₹6,400 in 2 years and ₹8,100 in 4 years on compound interest. Find the rate of compound interest.

A. 14.5%

B. 10.5%

C. 12.5% ✓

D. 16.5%

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Q24 Mathematics

A tailor can make 5 pieces out of 1 m of cloth. He has 57.6 m of cloth. How many pieces can he make out of this cloth?

A. 288 ✓

B. 289

C. 290

D. 286

Q25 Mathematics

If $11 = \frac{11x}{1-x}$, then the value of $(2x)^2$ is:

A. 4

B. 2

C. 3

D. 1 ✓

Q26 Mathematics

In a right circular cylinder, the ratio of the curved surface area to the total surface area is 5 : 9. Find the ratio of the height of the cylinder to the radius of the cylinder.

A. 3 : 5

B. 5 : 4 ✓

C. 4 : 5

D. 5 : 3

Q27 Mathematics

Find the difference between median and mode of the following data:

2, 3, 5, 7, 2, 3, 3, 5, 7 and 9.

A. –2

B. 2

C. –1

D. 1 ✓

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Q28 Mathematics

If a, b, c, d and e are the digits of a number beginning from the left, then the number is:

A. $100a + 10b + 10c + d + e$

B. $1000a + 100b + 10c + 1d + e$

C. edcba

D. $10^4a + 10^3b + 10^2c + 10d + e$ ✓

Q29 Mathematics

The minimum value of $11\sin^2\theta + 12\cos^2\theta$ is:

A. 12

B. 0

C. 11 ✓

D. 1

Q30 Mathematics

A television manufacturer earns a profit of 10% by selling one TV set for ₹24,750. If the production cost is increased by 15%, then what should be the new selling price of the TV set so as to gain a profit of 15%?

A. ₹27,756.25

B. ₹29,756.25 ✓

C. ₹28,756.25

D. ₹26,756.25

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

What is the sum of the squares of the numbers from 1 to 12?

A. 665
B. 660
C. 655
D. 650 ✓

Q2 Mathematics

Flooring of a room 12 m long and 8 m wide is to be designed by squares of maximum possible area. Find the number of square designs required.

A. 6 ✓
B. 5
C. 4
D. 8

Q3 Mathematics

Find the ratio of the measure of an angle of a regular pentagon to that of a regular octagon.

A. 4 : 5 ✓
B. 7 : 8
C. 6 : 7
D. 5 : 6

Q4 Mathematics

The sum of two numbers is 80 and their difference is 8. The ratio of the first number to the second number will be:

A. 13 : 9
B. 12 : 11
C. 11 : 9 ✓
D. 13 : 11

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Q5 Mathematics

Find the value of the following.

$$\frac{\cos 15^\circ - \sin 75^\circ}{\cos 15^\circ + \sin 75^\circ}$$

A. 1

B. ∞

C. 0 ✓

D. $2 \cos 15^\circ$

Q6 Mathematics

Angle 54° is equivalent to (in radians):

A. $\frac{3\pi}{10}$ ✓

B. $\frac{9\pi}{10}$

C. $\frac{\pi}{10}$

D. $\frac{7\pi}{10}$

Q7 Mathematics

The area of a square is $289\ \text{cm}^2$. Find the length of its diagonal.

A. $15\sqrt{2}$ cm

B. $13\sqrt{2}$ cm

C. $17\sqrt{2}$ cm ✓

D. $19\sqrt{2}$ cm

Q8 Mathematics

If the largest 4-digit number is subtracted from the smallest 6-digit number, then the remainder will be:

A. 99991

B. 80001

C. 90001 ✓

D. 90000

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Q9 Mathematics

If the sum of two numbers is 84 and their HCF and LCM are 3 and 124 respectively, the sum of the reciprocals of the two numbers will be:

A. $\frac{11}{31}$

B. $\frac{9}{31}$

C. $\frac{8}{31}$

D. $\frac{7}{31}$ ✓

Q10 Mathematics

Two quantities are in the ratio 3 : 5. If each quantity is decreased by 9 then the ratio becomes 5 : 9. Find the smaller quantity.

A. 53

B. 54 ✓

C. 51

D. 52

Q11 Mathematics

Find the area of an equilateral triangle with side 12 cm.

A. $30\sqrt{3}$ cm^2

B. $36\sqrt{3}$ cm^2 ✓

C. $32\sqrt{3}$ cm^2

D. $34\sqrt{3}$ cm^2

Q12 Mathematics

A daily wage labourer was engaged for a certain number of days for ₹5,850, but being absent on some of those days he was paid only ₹5,200. What was his maximum possible daily wage?

A. ₹700

B. ₹750

C. ₹650 ✓

D. ₹600

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Q13 Mathematics

The selling price of 40 items is equal to the purchase price of 35 items. What is the percentage profit or loss?

A. $12\frac{1}{2}$ % loss ✓

B. $13\frac{1}{2}$ % loss

C. $13\frac{1}{2}$ % profit

D. $12\frac{1}{2}$ % profit

Q14 Mathematics

Find the compound interest on ₹1,200 at 12% p.a. for 6 months compounded quarterly.

A. ₹71.08

B. ₹72.08

C. ₹73.08 ✓

D. ₹74.08

Q15 Mathematics

A man completes a journey in 11 h. He travels first half of the journey at the speed of 25 km/h and the second half at the speed of 30 km/h. Find the total distance of the journey.

A. 285 km

B. 300 km ✓

C. 265 km

D. 250 km

Q16 Mathematics

If $a^2 + b^2 + c^2 + d^2 = 1$, what will be the maximum value of the product abcd?

A. 64

B. 16

C. $\frac{1}{64}$

D. $\frac{1}{16}$ ✓

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Q17 Mathematics

The area of an isosceles right angle triangle is 81 cm^2 . Find the length of its hypotenuse.

A. 16 cm

B. 14 cm

C. 22 cm

D. 18 cm ✓

Q18 Mathematics

A scooterist is travelling at the speed of 50 km/h. How much distance will he cover in $2\frac{1}{2}$ h?

A. 130 km

B. 125 km ✓

C. 135 km

D. 120 km

Q19 Mathematics

In a polygon, the sum of the interior angles is triple the sum of the exterior angles. The number of sides is:

A. 8 ✓

B. 6

C. 7

D. 9

Q20 Mathematics

A dog saw a cat at a distance of 280 m. The cat at once ran with the speed of 10 km/h and the dog also ran to catch it with the speed of 24 km/h. How much time will the dog take to catch the cat?

A. 1.3 min

B. 1.2 min ✓

C. 1.5 min

D. 1.4 min

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Q21 Mathematics

Rakesh donates blood twice in 3 years each time 330 ml. How many litres of blood will he donate in 6 years?

A. 1.34 L

B. 1.36 L

C. 1.32 L ✓

D. 1.30 L

Q22 Mathematics

The HCF of two numbers is 19 and the other two factors of their LCM are 11 and 13. The larger of the two numbers is:

A. 249

B. 247 ✓

C. 243

D. 241

Q23 Mathematics

Find degree measure of an angle subtended at the centre of a circle of radius 28 cm by an arc of length 22 cm.

A. 40°

B. 45° ✓

C. 55°

D. 50°

Q24 Mathematics

Richa purchased a car for ₹6,50,000 and sold it for ₹7,80,000. What is the percentage profit she made on the car?

A. 20% ✓

B. 10%

C. 25%

D. 15%

Q25 Mathematics

35% of a number is the same as 30% of another number. Find the ratio of the first number to the second number.

A. 7 : 9

B. 6 : 7 ✓

C. 5 : 7

D. 8 : 9

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Q26 Mathematics

If the numbers from 1 to 26 that are divisible by 2 are arranged in descending order, which number will be at the 9^{th} place from the bottom?

A. 16

B. 18 ✓

C. 20

D. 14

Q27 Mathematics

A man's working hours per day were increased by 35% and his wages per hour were decreased by 25%. By what percentage were his daily earnings increased?

A. 1.25 ✓

B. 1.2

C. 1.3

D. 1.35

Q28 Mathematics

The diameter of a wheel is 88 cm. Find the number of revolutions in which it will cover a distance of 8712 m.

(Use $\pi = \frac{22}{7}$)

A. 3450

B. 3150 ✓

C. 3350

D. 3250

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Q29 Mathematics

$0.5\overline{32}$ is equivalent to the fraction:

A. $\frac{32}{99}$

B. $\frac{572}{990}$

C. $\frac{537}{990}$

D. $\frac{527}{990}$ ✓

Q30 Mathematics

The LCM of $\frac{1}{3}, \frac{7}{6}, \frac{5}{9}, \frac{4}{27}, \frac{8}{15}$ is:

A. $\frac{3}{280}$

B. $\frac{280}{3}$ ✓

C. $\frac{15}{280}$

D. $\frac{280}{15}$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the value of $18 - [6 - \{4 - (8 - (6 + 3))\}]$

A. 3

B. 11

C. 6

D. 17 ✓

Q2 Mathematics

Find the LCM and HCF of 12, 15 and 21

A. 420, 3 ✓

B. 240, 21

C. 420, 6

D. 140, 3

Q3 Mathematics

A sum of money becomes 8 times of itself in 3 years at compound interest compounded annually. The rate of interest is:

_____

A. 100% ✓

B. Data inadequate

C. 8%

D. 5%

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Q4 Mathematics

A, B and C can do a piece of work in 20, 30 and 60 days, respectively. A works every day. B assists A on all odd-numbered days, while C assists A on all even-numbered days. In how many days will the work be completed?

A. $13\frac{1}{5}$

B. $13\frac{1}{3}$

C. $13\frac{1}{4}$ ✓

D. $13\frac{1}{2}$

Q5 Mathematics

The area, in square units, of a triangle formed by the coordinate axis and the straight line $5x + 7y = 35$ is:

A. $\frac{2}{35}$

B. $\frac{35}{2}$ ✓

C. $\frac{25}{2}$

D. 35

Q6 Mathematics

Find the mode if mean and median are 4 and 5 respectively.

A. 9

B. 7 ✓

C. 11

D. 5

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Q7 Mathematics

In triangle ABC, what will be the value of $a(b\cos C - c\cos B)$?

A. b^2

B. c^2

C. $b^2 + c^2$

D. $b^2 - c^2$ ✓

Q8 Mathematics

If $\frac{4}{5} + \left(-\frac{3}{10}\right) = x + 1\frac{1}{2}$, then what will be the value of x?

A. -2

B. -1 ✓

C. 2

D. 1

Q9 Mathematics

Find the coordinates of the point which will divide the line joining the point (2, 4) and (7, 9) internally in the ratio 1 : 2

A. $(\frac{5}{3}, \frac{1}{3})$

B. $(\frac{11}{3}, \frac{17}{5})$ ✓

C. $(\frac{3}{8}, \frac{3}{11})$

D. $(\frac{8}{3}, \frac{11}{3})$

Q10 Mathematics

If A's salary is 20% less than B's salary, by how much percentage is B's salary more than A's?

A. 20%

B. $16\frac{2}{3}\%$

C. $33\frac{1}{3}\%$

D. 25% ✓

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Q11 Mathematics

If a – b = 5 and $a^2 + b^2 = 41$, then what is the value of ab?

A. 8 ✓

B. 5

C. 7

D. 16

Q12 Mathematics

A rectangle has 15 cm as its length and 150 cm^2 as its area .If the area is increased to $1\frac{1}{3}$ times the original area by increasing its length only, then the new perimeter is:

A. 70 cm

B. 60 cm ✓

C. 80 cm

D. 50 cm

Q13 Mathematics

A tank can be filled by 5 pipes in 80 minutes. How long will it take to fill the tank by 8 pipes of same dimensions?

A. 50 minutes ✓

B. 78 minutes

C. 128 minutes

D. 30 minutes

Q14 Mathematics

The original price of a TV set is ₹9,000. The price is discounted by 20% and then raised by 10%. What is its new price?

A. ₹9,920

B. ₹9,000

C. ₹7,900

D. ₹7,920 ✓

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Q15 Mathematics

Find the value of x if $\frac{x}{\sqrt{128}} = \frac{\sqrt{162}}{x}$

A. 144

B. 196

C. 14

D. 12 ✓

Q16 Mathematics

Find the square root of 42.25.

A. 6.5 ✓

B. 7.5

C. 4.5

D. 5.5

Q17 Mathematics

Which of the following is a factor of the polynomial $x^2 - x - 20$?

A. $x + 2$

B. $x - 5$ ✓

C. $x - 4$

D. $x + 5$

Q18 Mathematics

A man travelled a distance of 61 km in 9 h. He travelled partly on foot at the speed of 4 km/h and partly on bicycle at the speed of 9 km/h. What was the distance travelled on foot?

A. 18 km

B. 16 km ✓

C. 14 km

D. 12 km

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Q19 Mathematics

The decimal representation of $\frac{5}{100} + \frac{2}{5} - \frac{6}{25}$ is:

A. 0.45

B. 0.21 ✓

C. 0.51

D. 0.35

Q20 Mathematics

In a box containing one rupee, 50 paise and 25 paise coins in the ratio 1 : 2 : 3, the number of 50 paise coins was eighty. How much money was there in the box?

A. ₹108

B. ₹100

C. ₹105

D. ₹110 ✓

Q21 Mathematics

The fourth proportional to 4, 9, 12 is: _____

A. 36

B. 27 ✓

C. 72

D. 48

Q22 Mathematics

The sum of two numbers is 27 and the difference of their squares is 243. What is the difference between the numbers?

A. 9 ✓

B. 72

C. 42

D. 3

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Q23 Mathematics

Solve the following.

$$\frac{\tan A}{1+\sec A}+\frac{1+\sec A}{\tan A}=?$$

A. $2 \sin A$

B. $2 \cos A$

C. $2 \operatorname{cosec} A$ ✓

D. $2 \sec A$

Q24 Mathematics

A person buys an article for ₹650 and gains 6% on selling it. Find the selling price (in ₹).

A. 789

B. 986

C. 689 ✓

D. 656

Q25 Mathematics

If $X = 3^2 \times 2$, $Y = 2^3 \times 3$ and $Z = 3^2 \times 2^2$ then the L.C.M. of XY, YZ, ZX is:

A. 2482

B. 2492

C. 2582

D. 2592 ✓

Q26 Mathematics

The position of the point (3, 4) with respect to the circle $x^2 + y^2 - 3x - 4y + 1 = 0$:

A. lies inside it

B. lies outside of it ✓

C. lies on it

D. cannot be decided

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Q27 Mathematics

John, Sarah, Tom and Joane bought 3 pizzas of the same size in all. John ate $\frac{2}{4}$ of a pizza. Sarah, Tom and Joane ate $\frac{3}{4}$ of a pizza each. How much pizza was left?

A. $\frac{1}{2}$ of a pizza

B. $\frac{1}{4}$ of a pizza ✓

C. $\frac{3}{4}$ of a pizza

D. 1 pizza

Q28 Mathematics

If $\frac{2}{5}$ of the number of girl students attending a school function is equal to $\frac{3}{5}$ of the number of boys attending the function, what fraction of the total students attending the function will be $\frac{2}{5}$ of the number of girl students attending the function?

A. $\frac{2}{3}$

B. $\frac{1}{5}$

C. $\frac{6}{25}$ ✓

D. $\frac{5}{6}$

Q29 Mathematics

If the base and height of a triangle are 6 cm and 8 cm respectively, then the area of the triangle is:

A. $24\ cm^2$ ✓

B. $36\ cm^2$

C. $28\ cm^2$

D. $48\ cm^2$

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Q30 Mathematics

A and B together can complete a piece of work in 35 days. A alone can complete the same work in 60 days. B alone will be able to complete same work in:

A. 96 days

B. 84 days ✓

C. 72 days

D. 42 days

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

How much should we add to each of 7 and 9 so that the ratio of the two numbers thus formed is 13 : 14.

A. 16

B. 19 ✓

C. 17

D. 18

Q2 Mathematics

A maximum of how many pieces of exact 17 cm length can be cut from a 960 cm long rod?

A. 56 ✓

B. 58

C. 60

D. 54

Q3 Mathematics

10 years ago, the average age of a husband and his wife was 42 years. Now, the average age of the family consisting of the husband, wife and their son is 39 years. The present age of the son is:

A. 15 Years

B. 13 Years ✓

C. 10 Years

D. 20 Years

Q4 Mathematics

How many cubes of side 8 cm can be formed by melting a cuboid of length 24 cm, breadth 16 cm and height 16 cm?

A. 14

B. 16

C. 10

D. 12 ✓

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Q5 Mathematics

The perimeter of a rectangle is 240 metres. If its length is thrice its breadth, then its area is:

A. $2800\ m^2$

B. $2500\ m^2$

C. $2700\ m^2$ ✓

D. $2600\ m^2$

Q6 Mathematics

Three numbers are in ratio 11 : 16 : 23. If their sum is 150, find the greatest number.

A. 46

B. 115

C. 92

D. 69 ✓

Q7 Mathematics

A man's income at first increased by 20% and later on increased again by 30%. Find the total percent increase.

A. 54

B. 58

C. 60

D. 56 ✓

Q8 Mathematics

Heena covers a certain distance by train at 110 km/h and she returned to the starting point covering the same distance, driving a car at 50 km/h. Find her average speed for the whole journey.

A. 69.75 km/h

B. 68.25 km/h

C. 69.25 km/h

D. 68.75 km/h ✓

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Q9 Mathematics

18 apple trees, 21 mango trees and 39 orange trees have to be planted in rows such that each row contains the same number of trees and all of the same variety only. The minimum number of rows in which the trees may be planted is:

A. 26 ✓

B. 28

C. 24

D. 22

Q10 Mathematics

Find the remainder when $7^6 + 5$ is divided by 6.

A. 3

B. 2

C. 1

D. 0 ✓

Q11 Mathematics

On dividing 15,971 by a certain number, the quotient is 55 and the remainder is 21. Find the divisor.

A. 275

B. 285

C. 290 ✓

D. 280

Q12 Mathematics

The sum of two numbers is 30. If the sum of their reciprocals is $\frac{6}{25}$, find the two numbers.

A. 7 and 23

B. 5 and 25 ✓

C. 11 and 19

D. 9 and 21

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Q13 Mathematics

Rinku is twice as efficient as Deepak and together, they finish a piece of work in 28 days. Rinku alone can finish the work in:

A. 43 days

B. 42 days ✓

C. 41 days

D. 44 days

Q14 Mathematics

If one angle of a parallelogram is 39° less than twice the smallest angle, then the smallest angle of the parallelogram is:

A. 74°

B. 72°

C. 73° ✓

D. 75°

Q15 Mathematics

What is the smallest four digit number formed by using the digits 3, 5, 0, 6?

A. 3506

B. 0536

C. 0356

D. 3056 ✓

Q16 Mathematics

How many of the integers between 109 and 121, both inclusive, are prime numbers?

A. 3

B. 1

C. 2 ✓

D. 0

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Q17 Mathematics

A book was sold for ₹230 with a profit of 15%. If it was sold for ₹210, then what would have been the percentage of profit or loss?

A. 4% profit

B. 5% profit ✓

C. 4% loss

D. 5% loss

Q18 Mathematics

The HCF and LCM of two numbers are 75 and 450 respectively. If the first number is divided by 3, the quotient is 75. The second number is:

A. 225

B. 75

C. 450

D. 150 ✓

Q19 Mathematics

₹110 are contained in a box which consists of one rupee, 50 paise and 25 paise coins in the ratio 1 : 2 : 3. What is the number of 50 paise coins?

A. 79

B. 77

C. 80 ✓

D. 78

Q20 Mathematics

Find the value of $\cos 37^\circ \sec 143^\circ + \sin 34^\circ \operatorname{cosec} 146^\circ$

A. 1

B. -1

C. $\frac{1}{2}$

D. 0 ✓

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Q21 Mathematics

What is the sum of the cube of the natural numbers from 1 to 10, both inclusive?

A. 3023

B. 3025 ✓

C. 3024

D. 3022

Q22 Mathematics

The difference between the interior and exterior angles at a vertex of a regular polygon is 140°. The number of sides of the polygon is:

A. 22

B. 18 ✓

C. 20

D. 24

Q23 Mathematics

What is the measure of each exterior angle of a regular octagon?

A. 45° ✓

B. 30°

C. 60°

D. 50°

Q24 Mathematics

The area of a rectangle is 1287 cm^2 and its length and breadth are in the ratio of 13 : 11 respectively. What is its perimeter?

A. 140 cm

B. 144 cm ✓

C. 142 cm

D. 138 cm

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Q25 Mathematics

The product of the LCM and HCF of two positive numbers is 72. The difference of these two numbers is 1. Find the numbers.

A. 6 and 8

B. 8 and 7

C. 9 and 7

D. 8 and 9 ✓

Q26 Mathematics

Vicky can complete a piece of work in 40 days. He worked for 8 days, then Gurpreet Singh finished it in 32 days. In how many days can Vicky and Gurpreet Singh together complete the work?

A. 10 days

B. 20 days ✓

C. 15 days

D. 25 days

Q27 Mathematics

The sum of the greatest and smallest numbers of six digits is:

A. 199999

B. 100000

C. 1099999 ✓

D. 999999

Q28 Mathematics

The population of Ludhiana city increases by 20% annually. If it's present population is 8,47,000, What will the population be in 2 years?

A. 12,19,680 ✓

B. 12,14,682

C. 12,12,068

D. 12,10,681

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Q29 Mathematics

The corresponding altitudes of two similar triangles are 8 cm and 11 cm. Find the ratio of their areas:

A. 8 : 11

B. 64 : 121 ✓

C. 11 : 8

D. 121 : 64

Q30 Mathematics

A sum of money was lent on compound interest. It became ₹500 at the end of the first year and ₹550 at the end of second year. Find the rate of compound interest per annum.

A. 20%

B. 5%

C. 15%

D. 10% ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The cost price of 120 g of rice is the same as the selling price of 150 g of it. The percentage loss is:

A. 12.5% loss

B. 20% loss ✓

C. 15% loss

D. 25% loss

Q2 Mathematics

A tradesman marks his goods 25% above the cost price and allows his customers a 12% reduction on their bills. What percentage profit does he make?

A. 12.5%

B. 14%

C. 18%

D. 10% ✓

Q3 Mathematics

The roots of the equation $x^2 - 7x + 12 = 0$ are:

A. 3, 4 ✓

B. 5, 6

C. 2, 3

D. 7, 8

Q4 Mathematics

What is the median for the following series?

2, 5, 4, 1, 8

A. 3.5

B. 4.5

C. 4 ✓

D. 7

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Q5 Mathematics

A bacterial population increases at the rate of 6% in the first 10 minutes and then 10% in the next 10 minutes. What is the overall percentage increase in the population at the end of 20 minutes?

A. 16%

B. 16.3%

C. 16.5%

D. 16.6% ✓

Q6 Mathematics

Evaluate the following.

$$\cos^{-1}\left(\frac{1}{\sqrt{2}}\right)+\sec^{-1}(-\sqrt{2})$$

A. π ✓

B. $-\frac{\pi}{3}$

C. 0

D. $\frac{\pi}{3}$

Q7 Mathematics

There are 20 people in a party. If every person shakes hand with every other person, then what will be the total number of handshakes?

A. 155

B. 180

C. 145

D. 190 ✓

Q8 Mathematics

A train is travelling at a speed of 45 km/h. Calculate the distance that will be covered by the train in 64 seconds.

A. 0.8 km ✓

B. 4 km

C. 8 km

D. 2.94 km

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Q9 Mathematics

If the base of a cylinder is the same as that of a cone, and the height of the cylinder is also the same as that of the cone, then find the ratio of the volumes of the cylinder and the cone.

A. $1:3$

B. $3:2$

C. $2:3$

D. $3:1$ ✓

Q10 Mathematics

A alone can complete a work in 12 days and B alone can complete the same work in 18 days. They started working together, but A left after 3 days. In how many days will B alone be able to complete the remaining work?

A. 13.5

B. 15

C. 10.5 ✓

D. 21

Q11 Mathematics

The largest number of four digits that is divisible by 12, 15 and 18 is:

A. 9000

B. 9750

C. 9450

D. 9900 ✓

Q12 Mathematics

Simplify the following.

$$\sqrt{2+\sqrt{2+2\cos 4\theta}}$$

A. $\cos 2\theta$

B. $\cos\theta$

C. $2\cos\theta$ ✓

D. $\sin\theta$

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Q13 Mathematics

A shopkeeper buys calculators in bulk for ₹550 each and sells them for ₹580 each. What is the approximate percentage profit?

A. 5.95%

B. 5%

C. 5.7%

D. 5.45% ✓

Q14 Mathematics

If 58 out of 100 students in a school are boys, then express the part of the school that consists of boys in decimals.

A. 0.58 ✓

B. 0.85

C. 0.8

D. 0.5

Q15 Mathematics

A can finish a work in 15 days and B can finish the same work in 20 days. Working together, in how many days can they finish the same work?

A. 12.57

B. 8.57 ✓

C. 20

D. 17.5

Q16 Mathematics

Simplify the following.

$105 \div 5 \times 3 + 39 - 46$

A. 0

B. 56 ✓

C. 65

D. 10

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Q17 Mathematics

Find the value of x if $\sqrt{1+\frac{x}{144}}=\frac{13}{12}$.

A. 30

B. 16

C. 25 ✓

D. 20

Q18 Mathematics

The LCM of two numbers is 96 and their HCF is 8. If one of the two numbers is 32, then what is the other number?

A. 28

B. 16

C. 48

D. 24 ✓

Q19 Mathematics

The ratio of A's salary to that of B was 4 : 5. A's salary got increased by 10% and B's salary got increased by 20%. What is the ratio of A's salary to that of B now?

A. 15 : 14

B. 11 : 14

C. 14 : 11

D. 11 : 15 ✓

Q20 Mathematics

If a : b = 3 : 4 and d : b = 4 : 3, then find the ratio of a to d.

A. 3 : 4

B. 9 : 16 ✓

C. 16 : 9

D. 4 : 3

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Q21 Mathematics

How many of the first 100 positive integers are divisible by 3 or 4 without a remainder?

A. 58

B. 85

C. 5

D. 50 ✓

Q22 Mathematics

If the ratio of the radii of two spheres is 2 : 3, then the ratio of their surface areas will be:

A. 4 : 9 ✓

B. 2 : 9

C. 8 : 27

D. 4 : 3

Q23 Mathematics

The sum of two numbers is 20 and their product is 96. What is the difference between the two numbers?

A. 4 ✓

B. 5

C. 8

D. 6

Q24 Mathematics

Maddy reads three-fifth of a chapter consisting of 75 pages. How many more pages does he need to read to complete the chapter?

A. 15

B. 25

C. 20

D. 30 ✓

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Q25 Mathematics

If $(2, -2)$ and $(5, 2)$ are two consecutive vertices of a square, then the length of each side of the square will be:

A. 5 units ✓

B. $5\sqrt{2}$ units

C. $\frac{5}{\sqrt{2}}$ units

D. $\sqrt{5}$ units

Q26 Mathematics

What will be the compound interest on a sum of ₹25,000 after 3 years at a rate of 12% per annum, compounded annually?

A. ₹1,048.20

B. ₹900.30

C. ₹9,720

D. ₹10,123.20 ✓

Q27 Mathematics

If $x \times y = x + y + \sqrt{xy}$, then the value of 6×24 will be:

A. 43

B. 41

C. 42 ✓

D. 44

Q28 Mathematics

If the length of the tangent from $(2, 5)$ to $x^2 + y^2 - 5x + 4y + k = 0$ is $\sqrt{37}$ units, then the value of k is:

A. 2

B. 1

C. -2 ✓

D. -1

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Q29 Mathematics

Find the ninth term of an arithmetic progression with the first term as 5 and the common difference as 4.

A. 35

B. 39

C. 37 ✓

D. 41

Q30 Mathematics

The equation of the line passing through (2, 3) and perpendicular to the line joining (–5, 6) and (–6, 5) is:

A. $x + y - 5 = 0$ ✓

B. $x - y - 5 = 0$

C. $x + y + 5 = 0$

D. $x - y + 5 = 0$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Two-fifth of one-fourth of three-seventh of a number is 15. What is the half of that number?

A. 175 ✓

B. 300

C. 170

D. 375

Q2 Mathematics

For the data set 1, 2, 3, 5, 2, 3, 4, 6, 6, 8, 3, 4, 5 which of the following options is INCORRECT?

A. Median > Mode

B. Mean = Median

C. Mode < Mean

D. Mean = Mode ✓

Q3 Mathematics

Two men start walking together to a certain destination, one at the speed of 3 km/h and another at the speed of 3.75 km/h. The latter arrives half an hour before the former. The distance is:

A. 6.7 m

B. 0.7 km

C. 7.5 km ✓

D. 7.0 km

Q4 Mathematics

What is the value of the digits A and B?

$$BA \times B3 = 57A$$

A. A = 5, B = 2 ✓

B. A = 5, B = 3

C. A = 3, B = 5

D. A = 2, B = 4

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Q5 Mathematics

The least number by which 294 must be multiplied to make it a perfect square, is:

A. 1

B. 3

C. 4

D. 6 ✓

Q6 Mathematics

Find the principal value of $sin^{-1}\left(\frac{1}{\sqrt{2}}\right)$.

A. π

B. $\frac{\pi}{4}$ ✓

C. 0

D. $\frac{\pi}{2}$

Q7 Mathematics

The value of

$\cos(sec^{-1}x + cosec^{-1}x), |x| \geq 1$ is:

A. 0 ✓

B. 2

C. ± 1

D. 1

Q8 Mathematics

A retailer marks all his goods at 50% above the cost price and thinking that he will still make 25% profit, offers a discount of 25% on the marked price. What is his actual profit on the sales?

A. 17%

B. 12.60%

C. 12.50% ✓

D. 12%

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Q9 Mathematics

A tyre has two punctures. The first puncture alone would have made the tyre flat in 9 min and the second alone would have done it in 6 min. If air leaks out at a constant rate, how long will it take both the punctures together to make the tyre flat?

A. $1\frac{1}{2}$ min

B. $3\frac{1}{2}$ min

C. $3\frac{3}{5}$ min ✓

D. $4\frac{1}{4}$ min

Q10 Mathematics

The difference between a 7% profit and a 6% loss while selling an item is ₹104. What is the cost price of the item?

A. ₹780

B. ₹820

C. ₹850

D. ₹800 ✓

Q11 Mathematics

In triangle ABC, $\angle A$ *is* $12°$ more than the measure of $\angle C$. The measure of $\angle B$ is 4 times as great as the measure of $\angle C$. What are the measures of the angles A, B and C respectively?

A. $40°, 112°, 18°$

B. $40°, 112°, 28°$ ✓

C. $35°, 92°, 23°$

D. $40°, 120°, 28°$

Q12 Mathematics

How much of an 80% orange juice drink must be mixed with 36 litres of a 25% orange juice drink to obtain a mixture that has 60% orange juice?

A. 72 litres

B. 40 litres

C. 63 litres ✓

D. 60 litres

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Q13 Mathematics

Which of the following statement(s) is/are true.

1) Every whole number is a natural number.

2) Every integer is a rational number.

3) Every rational number is an integer.

A. Both, 2 and 3

B. 2 ✓

C. 3

D. 1

Q14 Mathematics

Find the least number that must be added to 1300 so as to get a perfect square.

A. 96

B. 63

C. 36

D. 69 ✓

Q15 Mathematics

An Army General wishes to arrange his 40125 soldiers in rows and columns in the form of a square. After arranging them, he found that some of them are left out. How many soldiers are left out?

A. 175

B. 125 ✓

C. 200

D. 150

Q16 Mathematics

The ratio of the velocities of the hour hand and minute hand of a clock is:

A. 1 : 1

B. 1 : 12 ✓

C. 5 : 1

D. 12 : 1

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Q17 Mathematics

A shopkeeper cheats to the extent of 10% while buying as well as while selling. While he was eventually caught and punished, at what percent was he gaining till then?

A. $21\ \%$ ✓

B. $34\ \%$

C. $21\frac{1}{2}\%$

D. $20\ \%$

Q18 Mathematics

When 40 is subtracted from a number, it reduces to its 60%. What is the number?

A. 200

B. 100 ✓

C. 160

D. 130

Q19 Mathematics

Solve the following.

$\left(\frac{1}{5}x - \frac{1}{6}y\right)(5x + 6y) = ?$

A. $x^2 + \frac{11xy}{30} - y^2$ ✓

B. $x + \frac{11xy}{30} - y^2$

C. $x^2 + \frac{11xy}{30} - y$

D. y^2

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Q20 Mathematics

A is 50% as efficient as B. C completes half of the task completed by A and B together in a day. If C alone completes the task in 40 days, then A, B and C together can complete the task in:

A. $13\frac{1}{3}$ days ✓

B. 13 days

C. $\frac{43}{3}$ days

D. $\frac{1}{3}$ days

Q21 Mathematics

A train is moving at a uniform speed of 75 km /h. Find the time required by the train to cover a distance of 250 km.

A. 3 h 5 min

B. 3 h

C. 2 h

D. 3 h 20 min ✓

Q22 Mathematics

What is the sum of the angle complementary to 15° and the angle supplementary to 125°?

A. 150°

B. 120°

C. 130° ✓

D. 135°

Q23 Mathematics

If a carton containing a dozen mirrors is dropped, which of the following can be the ratio of number of broken mirrors to unbroken mirrors?

A. 3 : 7

B. 3 : 2

C. 4 : 7

D. 5 : 1 ✓

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Q24 Mathematics

Three numbers are in the ratio 1 : 2 : 3 and their HCF is 12. The respective numbers are:

A. 12, 24, 36 ✓

B. 12, 34, 36

C. 10, 12, 36

D. 12, 36, 48

Q25 Mathematics

The dimensions of an ice compartment in a refrigerator 8cm × 5 cm × 4 cm. How many ice cubes will it hold, if each ice cube is 2 cm on its edge?

A. 40

B. 80

C. 20 ✓

D. 24

Q26 Mathematics

In a five digit number, the digit in the hundred's place is 2 and the digit in the unit's place is twice the digit in the hundred's place. The number has no thousands. The digit in the ten thousand's place is the sum of the digit in the hundred's place and the digit in the unit's place. The digit in the ten's place is the digit in the ten thousand's place minus 1. The number is:

A. 60254 ✓

B. 60264

C. 60234

D. 60224

Q27 Mathematics

Simplification of $\frac{0.2 \times 0.2 + 0.02 \times 0.02 - 0.4 \times 0.02}{0.36}$ gives:

A. 2

B. 0.09 ✓

C. 3.195

D. 2.199

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Q28 Mathematics

Consider the following statements and decide which of them is/are correct.

1) Every prime is odd.

2) Product of any two prime numbers is odd.

A. 1 and 2

B. 2 alone

C. Neither 1 nor 2 ✓

D. 1 alone

Q29 Mathematics

The angle formed by the pages of a fully open book, with just few pages, is theoretically:

A. Right angle

B. Straight angle ✓

C. Obtuse angle

D. Acute angle

Q30 Mathematics

What will be the amount (in ₹) of annual payment that will discharge a debt of ₹1,025 due in 2 years at the rate of 5% compound interest per annum?

A. 551.60

B. 551.25 ✓

C. 549.23

D. 550.0

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A person has to put each of three liquids, 420 L of diesel, 475 L of petrol and 495 L of oil in bottles of equal size without mixing any of the above three types of liquids such that each bottle is completely filled. What is the least possible number of bottles required?

A. 284

B. 280

C. 282

D. 278 ✓

Q2 Mathematics

A woman borrowed some money on simple interest. After 4 years she returned $\frac{6}{5}$ of money to the lender.

What was the rate of interest?

A. 3% p.a.

B. 5% p.a. ✓

C. 4% p.a.

D. 2% p.a.

Q3 Mathematics

The product of the LCM and HCF of two positive numbers is 36. The difference of the two numbers is 5. Find the numbers.

A. 5 and 8

B. 5 and 9

C. 4 and 9 ✓

D. 4 and 8

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Q4 Mathematics

If $\cot(A+B).\cot(A-B) = 1$, then the value of $\cot\left(\frac{2A}{3}\right)$ is:

A. $\frac{\sqrt{3}}{2}$

B. $\frac{2}{\sqrt{3}}$

C. $\frac{1}{\sqrt{3}}$

D. $\sqrt{3}$ ✓

Q5 Mathematics

The sum of two angles is 155° and their difference is $\frac{\pi}{2}$. The value of the greater angle (in radians) is:

A. $\frac{53\pi}{72}$

B. $\frac{49\pi}{72}$ ✓

C. $\frac{47\pi}{72}$

D. $\frac{51\pi}{72}$

Q6 Mathematics

If $a + b + c = 8$ and both b and c are positive integers greater than zero, then the maximum value 'a' can take is:

A. 6 ✓

B. 10

C. 8

D. 0

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Q7 Mathematics

A gold ring is sold for ₹19,125 at a loss of 15%. What is the cost price of the gold ring?

A. ₹24,500

B. ₹22,500 ✓

C. ₹23,500

D. ₹21,500

Q8 Mathematics

If $\cos 2\theta = \frac{1}{2}$, then the value of $\sin(75^\circ - \theta)$ will be:

A. $\sqrt{2} + 1$

B. $\sqrt{2} - 1$

C. $\frac{1}{2}$

D. $\frac{1}{\sqrt{2}}$ ✓

Q9 Mathematics

The price of an article was reduced by 15% and it's daily sale increased by 25%. Find the net percentage effect on daily sale.

A. 6.1 % increase

B. 6.15 % increase

C. 6.35 % increase

D. 6.25 % increase ✓

Q10 Mathematics

If $X : Y = 4 : 5$, $Y : Z = 5 : 7$ and $Z : W = 7 : 9$, then $X : W$ is equal to:

A. 4 : 9 ✓

B. 3 : 7

C. 2 : 9

D. 3 : 11

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Q11 Mathematics

What is the sum of the squares of the numbers from 3 to 18?

A. 2102

B. 2104 ✓

C. 2103

D. 2101

Q12 Mathematics

The LCM of two numbers is 26 times their HCF. The sum of the HCF and LCM is 729. If one number is 81, find the other.

A. 233

B. 232

C. 234 ✓

D. 231

Q13 Mathematics

Find sum of the smallest and the largest positive numbers of 6 digits which contains only digits 0, 4, 6 and each of these digits appears at least once:

A. 1066646 ✓

B. 604604

C. 666666

D. 666444

Q14 Mathematics

The rate of a certain variety of rice increases by 20%. A man gets that variety of rice 3 kg less for ₹630 in comparison with the quantity that he would have got at the old rate. Find the old rate of that variety of rice.

A. ₹36 per kg

B. ₹35 per kg ✓

C. ₹37 per kg

D. ₹34 per kg

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Q15 Mathematics

The HCF of two numbers is 29 and the other two factors of their LCM are 13 and 17. The smallest of the two numbers is:

A. 493

B. 373

C. 377 ✓

D. 387

Q16 Mathematics

There are 500 students in a school. The boys and girls are in the ratio 7 : 3. If 120 new girls are enrolled in the school, then what will be the ratio of the number of boys to that of girls?

A. 35 : 27 ✓

B. 35 : 29

C. 35 : 28

D. 35 : 26

Q17 Mathematics

Area of an equilateral triangle is $49\sqrt{3}\text{cm}^2$. Find the side of the triangle.

A. 16 cm

B. 14 cm ✓

C. 18 cm

D. 12 cm

Q18 Mathematics

If $\sqrt{2}\ \sin(5x - 5)^\circ = \tan 45^\circ$, then the value of x (in degrees) is:

A. 14

B. 16

C. 10 ✓

D. 12

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Q19 Mathematics

Two women walk from a place at the speeds of 6 km/h and 8 km/h respectively. First woman takes 40 min more than the second one to cover the distance. Find the distance.

A. 14 km

B. 16 km ✓

C. 12 km

D. 10 km

Q20 Mathematics

4 angles of a pentagon are $70°$, $110°$, $135°$ and $95°$. Find the measure of the fifth angle of the pentagon.

A. $134°$

B. $128°$

C. $130°$ ✓

D. $132°$

Q21 Mathematics

What is the unit digit in the following product?

$91 \times 92 \times 93 \times \ldots\ldots \times 99$

A. 1

B. 2

C. 0 ✓

D. 4

Q22 Mathematics

A cyclist takes 13 h to cover certain distance. He travels first half of the distance at a speed of 7 km/h and the second half at a speed of 6 km/h. Find the distance.

A. 84 km ✓

B. 82 km

C. 80 km

D. 86 km

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Q23 Mathematics

By how much should each term of the ratio 17 : 21 be reduced so that it becomes 7 : 9?

A. 3 ✓

B. 2

C. 5

D. 4

Q24 Mathematics

A horse is running at a speed of 40 km/h and it covers its distance in 3 h. If it has to cover that distance in $2\frac{1}{2}$ h, at what speed should it run?

A. 48 km/h ✓

B. 44 km/h

C. 42 km/h

D. 46 km/h

Q25 Mathematics

Terry consumes 1700 mL of milk every day. How many litres of milk will she consume in 5 weeks?

A. 59.5 L ✓

B. 59 L

C. 60 L

D. 58.5 L

Q26 Mathematics

If the numbers divisible by 3, from 1 to 30, are arranged in descending order, which number will be at the 7^{th} place from the bottom?

A. 18

B. 24

C. 27

D. 21 ✓

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Q27 Mathematics

The sides of a rectangle are 49 m and 35 m respectively. How many square beds can be accommodated in this rectangle if the side of the bed is 7 m?

A. 36

B. 33

C. 34

D. 35 ✓

Q28 Mathematics

The areas of two squares are in the ratio 16 : 9. Find the ratio of their respective perimeters.

A. 4 : 3 ✓

B. 3 : 4

C. 5 : 4

D. 4 : 5

Q29 Mathematics

A side of the triangle is 15 cm and the height of the triangle from this side is 6 cm. Find the area of triangle.

A. 46 cm^2

B. 45 cm^2 ✓

C. 47 cm^2

D. 48 cm^2

Q30 Mathematics

The earth takes 24 h to rotate about its own axis. Through what angle will it turn in 5 h and 24 min?

A. 80 °

B. 81 ° ✓

C. 82 °

D. 79 °

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Mathematics

30 Questions • Answer Key

Q1 Mathematics

Some one rupee, 50 P and 25 P coins make up ₹93.75 and the respective numbers of coins of each type are in the ratio 3 : 4 : 5. Find the number of coins of each type respectively.

A. 34, 38 and 47

B. 45, 60 and 75 ✓

C. 54, 60 and 47

D. 40, 60 and 57

Q2 Mathematics

Walking at $\frac{5}{6}$ of her usual speed Anita took 2 minutes more than usual to reach the bus terminus. How long does Anita take to reach the terminus on days that she isn't late?

A. 12 minutes

B. 10 minutes ✓

C. 9 minutes

D. 8 minutes

Q3 Mathematics

The HCF of any two even perfect squares will be at least

A. 4 ✓

B. 2

C. 1

D. 6

Q4 Mathematics

The value of $\tan\left(\frac{13\pi}{12}\right)$ is:

A. $3-\sqrt{3}$

B. $2+\sqrt{3}$

C. $4-\sqrt{3}$

D. $2-\sqrt{3}$ ✓

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Q5 Mathematics

If $3a = 4b = 6c$ and $a + b + c = 27\sqrt{29}$, then what will be the value of $\sqrt{a^2 + b^2 + c^2}$?

A. $3\sqrt{81}$

B. 81

C. 85

D. 87 ✓

Q6 Mathematics

What is minimum radius (> 1) of a circle whose circumference is an integer?

A. $\frac{3}{\pi}$

B. $\frac{6}{\pi}$

C. $\frac{4}{\pi}$ ✓

D. 2

Q7 Mathematics

Which of the following CANNOT take a negative value?

A. Standard Deviation ✓

B. Median

C. Mean

D. Skewness

Q8 Mathematics

A boy read $\frac{3}{8}$ of a book on one day and $\frac{4}{5}$ of the remainder on another day. If there were 30 pages unread, how many pages did the book contain?

A. 380

B. 209

C. 200

D. 240 ✓

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Q9 Mathematics

A cylinder and a right circular cone having the same height also have equal volumes. What is the ratio of the radius of the base of the cylinder to that of the cone?

A. $1:3$

B. $3:\sqrt{3}$

C. $\sqrt{3}:3$ ✓

D. $3:1$

Q10 Mathematics

The number of illiterate persons in a country decreased from 150 lakhs to 100 lakhs in 10 years. What is the percentage of decrease?

A. $33\frac{2}{3}$

B. 33

C. $22\frac{1}{3}$

D. $33\frac{1}{3}$ ✓

Q11 Mathematics

A, B and C start at the same time in the same direction to run around a circular stadium. A completes a round in 252 s, B completes it in 308 s and C completes it in 198 s, all starting from the same point. After what time will they meet again at the starting point?

A. 46 min

B. 46 min 12 s ✓

C. 46 s

D. 45 min 11 s

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Q12 Mathematics

When a wire is bent into the shape of a square, the area of the square is $81\ cm^2$. When the wire is bent into a semi-circular shape, what will be the area of the semicircle?

[Take $\pi = \frac{22}{7}$]

A. $77\ cm^2$ ✓

B. $11\ cm^2$

C. $77\ m^2$

D. $7\ cm^2$

Q13 Mathematics

Select the term that can replace the question mark (?) in the following equation.

$(2a^3 - 3)(5a^3 - 2) = 10\,a^6 + ? + 6$

A. $19a^2$

B. $-19a^3$ ✓

C. $19a^3$

D. 19

Q14 Mathematics

If 1 cm on a map represents 9 km of actual distance, then how many km of actual distance will 2 cm on the same map represent?

A. 22

B. 18 ✓

C. 12

D. 16

Q15 Mathematics

The measure of an angle is three times the measure of its complement. The angles are respectively:

A. $20.5°, 67.5°$

B. $22.5°, 67.5°$ ✓

C. $20°, 60°$

D. $22.5°, 60.5°$

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Q16 Mathematics

Using $\pi = \frac{22}{7}$, find the lateral surface area of a right circular cone whose diameter of the circular base is 8 cm and whose slant height is 14 cm.

A. $176\ cm^2$ ✓

B. $168\ cm^2$

C. $170\ cm^2$

D. $175\ cm^2$

Q17 Mathematics

A sample of milk contains 5% of water. What quantity of pure milk should be added to 10 L of milk sample to reduce this to 2%?

A. 50 L

B. 15 L ✓

C. 10 L

D. 12 L

Q18 Mathematics

If $1.5x = 0.04y$, then what will be the value of $\left(\frac{y-x}{y+x}\right)$?

A. $\frac{73}{77}$ ✓

B. $\frac{70}{77}$

C. $\frac{77}{73}$

D. $\frac{72}{77}$

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Q19 Mathematics

To a number, $\left(\frac{1}{3}-\frac{1}{4}\right)$ is added. From the sum so obtained $\frac{1}{3}$ of $\frac{1}{4}$ is subtracted and the remainder is $\frac{1}{3}+\frac{1}{4}$.

Find the number.

A. $\frac{2}{3}$

B. $\frac{7}{12}$ ✓

C. $\frac{1}{12}$

D. $\frac{4}{9}$

Q20 Mathematics

To make Idlies, if you take two parts rice and one part urad dal, what percentage of such a mixture would be rice and what percentage would be urad dal respectively?

A. $100\%, 99\%$

B. $66\frac{2}{3}\%, 33\frac{2}{3}\%$

C. $66\%, 33\%$

D. $66\frac{2}{3}\%, 33\frac{1}{3}\%$ ✓

Q21 Mathematics

The cost of a flower is ₹120. If the shopkeeper sells it at a loss of 10%, then the price (in ₹) at which it is sold will be:

A. 104

B. 108 ✓

C. 80

D. 110

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Q22 Mathematics

6 pipes, all of same type, are required to fill a tank in 1 h 20 min. How long will it take if only 5 pipes of the same type are used?

A. 1 h 63 min

B. 1 h 40 min

C. 1 h 36 min ✓

D. 5 h

Q23 Mathematics

In a class the ratio of boys to girls was 5 : 7. If there were 6 more girls than boys, find the total number of students in the class.

A. 48

B. 60

C. 24

D. 36 ✓

Q24 Mathematics

Four bells begin to toll together at 8.00 am and then each one at intervals of 5 s, 6 s, 7 s and 8 s respectively. How many times will they toll together in a shift of 7 hours?

A. 31 times ✓

B. 15 times

C. 25 times

D. 21 times

Q25 Mathematics

Find the smallest natural number N such that the product $288 \times N$ is a perfect cube.

A. 8

B. 9

C. 12

D. 6 ✓

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Q26 Mathematics

If 10% of m is the same as 20% of n, then m : n will be equal to:

A. 2 : 1 ✓

B. 3 : 1

C. 1 : 1

D. 1 : 2

Q27 Mathematics

The diameter of a bullock cart wheel is $\frac{14}{11}$ m. This wheel makes ten complete revolutions per minute. What will be the speed of the cart in km/h?

A. 4.8

B. 8.8

C. 9.6

D. 2.4 ✓

Q28 Mathematics

The sum of the first four prime numbers is:

A. 17 ✓

B. 19

C. 18

D. 16

Q29 Mathematics

Between a square of perimeter 44 cm and a circle of circumference 44 cm, which figure has a larger area and by how much?

A. Square, 34 cm^2

B. Circle, 23 cm^2

C. Square, 33 cm^2

D. Circle, 33 cm^2 ✓

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Q30 Mathematics

The ratio of two numbers is 3 : 4 and their HCF is 4. Their LCM will be:

A. 40

B. 22

C. 84

D. 48 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If the side of a square is $\frac{1}{10}$ m, then how many such squares will get accommodated in a bigger square of side 4 m?

A. 1650

B. 1500

C. 1200

D. 1600 ✓

Q2 Mathematics

A man deposits ₹5,000 in his bank account for 5 years to earn a simple interest of 12% per annum. What amount will he get after 5 years?

A. ₹3,500

B. ₹7,500

C. ₹8,000 ✓

D. ₹2,500

Q3 Mathematics

If a triangle and a parallelogram are on the same base and between the same parallels, then the area of the triangle is equal to:

A. the area of the parallelogram

B. one-third of the area of the parallelogram

C. half the area of the parallelogram ✓

D. three-fourth of the area of the parallelogram

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Q4 Mathematics

In an election between two candidates, 75% of the voters enrolled in the election cast their votes, out of which 2% were declared invalid. A candidate got 9261 votes, which were 75% of the valid votes. The total number of voters enrolled in that election were:

A. 16800 ✓

B. 16400

C. 18000

D. 16000

Q5 Mathematics

The perimeters of five squares are 24 cm, 32 cm, 40 cm, 76 cm and 80 cm respectively. The perimeter of another square whose area is equal to the sum of the areas of these squares will be:

A. 120 cm

B. 100 cm

C. 124 cm ✓

D. 128 cm

Q6 Mathematics

Find the greatest four-digit number that is a perfect square.

A. 9000

B. 9999

C. 9801 ✓

D. 9008

Q7 Mathematics

If $\cos x = -\frac{3}{5}$ and x lies in the third quadrant, then the value of the $\sin x$ is:

A. $\frac{4}{5}$

B. 1

C. 0

D. $-\frac{4}{5}$ ✓

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Q8 Mathematics

A can do a piece of work alone in 32 days, while together with B she can do the work in 24 days. If C alone can do the work in 64 days, in how many days can B and C together do the work?

A. $38\frac{2}{5}$ days ✓

B. $38\frac{3}{5}$ days

C. $37\frac{4}{5}$ days

D. $38\frac{4}{5}$ days

Q9 Mathematics

A man travelled from a village to a post-office at a speed of 25 km/h and walked back at a speed of 4 km/h. If the whole journey took 5 hours 48 minutes, then the distance of the post-office from the village is:

A. 40 m

B. 20 m

C. 20 km ✓

D. 40 km

Q10 Mathematics

The minute hand of a watch is 1.5 cm long. How far does its tip move in 40 minutes?

(take $\pi = 3.14$)

A. 2π m

B. π cm

C. 6.28 cm ✓

D. 6.00 cm

Q11 Mathematics

If $\frac{144}{0.144} = \frac{14.4}{x}$, then what is the value of x ?

A. 0.01044

B. 0.144

C. 0.0144 ✓

D. 0.00144

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Q12 Mathematics

The mean and standard deviation of 100 observations were calculated as 40 and 5.1 respectively by a student who took 50 instead of 40 for one observation. What is the correct mean and standard deviation?

A. $39.9, 50$

B. $39.09, 5$

C. $39.9, 5$ ✓

D. $39.0, 5$

Q13 Mathematics

The ratio of two numbers is $3 : 4$ and their HCF is 4. Their LCM is:

A. 48 ✓

B. 84

C. 34

D. 42

Q14 Mathematics

The variance of 20 observations is 5. If each observation is multiplied by 2, then the variance of the resulting observations will be:

A. $2^2 \times 5$ ✓

B. 5

C. 2×5^2

D. 2×5

Q15 Mathematics

A student multiplied a number by $\frac{3}{5}$ instead of $\frac{5}{3}$. What is the percentage error in the calculation?

A. 46%

B. 10%

C. 64% ✓

D. 20%

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Q16 Mathematics

The radius of the circle in which a central angle of $60°$ intercepts an arc of length 35 cm is:

A. $\frac{105}{\pi}$ cm ✓

B. $\frac{35}{\pi}$ cm

C. $\frac{100}{\pi}$ cm

D. $35\,\pi$ cm

Q17 Mathematics

A, B and C all start their journey from the same place and all three follow the same route. However, A travels at a speed of 60 km/h, B at a speed of 75 km/h and C at a speed of 80 km/h. Also, A starts the journey five hours before B does. If B and C both overtake A at the same instance while travelling, how much time after A did C start the journey?

A. 6 hours 25 minutes

B. 6 hours 12 minutes

C. 6 hours 15 minutes ✓

D. 6 hours 30 minutes

Q18 Mathematics

In what time will ₹ 1,000 become ₹ 1,331 at an interest rate of 10% per annum compounded annually?

A. $2\frac{1}{2}$ years

B. 4 years

C. 3 years ✓

D. 2 years

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Q19 Mathematics

Solve the following.

$108 \div (36 \times \frac{1}{4}) + \frac{2}{5} \times 3\frac{1}{4} = ?$

A. $13\frac{3}{10}$ ✓

B. $\frac{130}{10}$

C. $\frac{132}{10}$

D. $\frac{13}{10} + 11$

Q20 Mathematics

In a swimming pool measuring 90 m $\times$ 40 m, 150 men take a dip. If the average displacement of water by a man is 8 m^3, then what will be the rise in the water level of the pool?

A. 30 cm

B. 25 cm

C. 20 cm

D. 33.33 cm ✓

Q21 Mathematics

A number, x, when divided by 7 leaves a remainder of 1 and another number, y, when divided by 7 leaves a remainder of 2. What will be the remainder if $x + y$ is divided by 7?

A. 2

B. 4

C. 1

D. 3 ✓

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Q22 Mathematics

A tailor has 37.5 m of cloth. He has to make 8 pieces out of 3 m of cloth. How many pieces can he make out of his cloth?

A. 300

B. 90

C. 100 ✓

D. 150

Q23 Mathematics

The sum of half, one-third and one-fifth of a number exceeds the number by 12. What is the number?

A. 122

B. 444

C. 360 ✓

D. 144

Q24 Mathematics

Which of the following is equal to 3.14×10^6 ?

A. 31.40000

B. 3140000 ✓

C. 3140

D. 314000

Q25 Mathematics

Find the sum of all even natural number less than 85.

A. 4700

B. 1806 ✓

C. 840

D. 1408

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Q26 Mathematics

What is the difference between the compound interests on a sum of ₹ 5,000 for $1\frac{1}{2}$ years at 4% per annum compounded yearly and half-yearly?

A. ₹3.40

B. ₹3.61

C. ₹2.90

D. ₹2.04 ✓

Q27 Mathematics

If $\frac{a}{2} = \frac{b}{3} = \frac{c}{5}$ then find $\frac{a+b+c}{c}$.

A. 10

B. 12

C. 5

D. 2 ✓

Q28 Mathematics

There are 2401 students in a school. The PT teacher wants all of them to stand in rows and columns. Find the number of rows, if the number of rows is equal to the number of columns.

A. 29

B. 39

C. 49 ✓

D. 19

Q29 Mathematics

There are three consecutive road crossings at which traffic lights change after every 35 seconds, 42 seconds and 90 seconds, respectively. If the lights are set on simultaneously at 8:00:00 hours, then after how much time will they change again simultaneously?

A. 7 minutes 20 seconds

B. 9 minutes 10 seconds

C. 10 minutes 30 seconds ✓

D. 9 minutes 30 seconds

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Q30 Mathematics

If 5% more is gained by selling an article for ₹ 350 than by selling the article for ₹ 340, then what is the cost of the article?

A. ₹100

B. ₹250

C. ₹160

D. ₹200 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A train is travelling at a uniform speed of 75 km/h. How far will it travel in 20 minutes?

A. 25 km ✓

B. 40 km

C. 4 km

D. 20 km

Q2 Mathematics

An aeroplane flies along the sides of an equilateral triangle at the speed of 300 km/h, 200 km/h and 240 km/h, respectively. The average speed of the plane while flying around the triangle is:

A. 150 km/h

B. 240 km/h ✓

C. 140 km/h

D. 40 km/h

Q3 Mathematics

If the length of the diagonal of a square is 20 cm, then what is its perimeter?

A. $40\sqrt{2}$ cm ✓

B. $40\sqrt{2}$ m

C. 0 cm

D. $\sqrt{2}$ cm

Q4 Mathematics

There are 100 students in a hostel. Food provisions for them will last for 20 days. How long will the same provisions last if 25 more students join the hostel?

A. 15 days

B. 16 days ✓

C. 4 days

D. 10 days

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Q5 Mathematics

A boy was asked to multiply a given number with $\frac{5}{11}$. Instead, he divided the same number by $\frac{5}{11}$. Thus, his answer exceeded the correct answer by 192. What is the given number?

A. 192

B. $\frac{110}{5}$

C. 50

D. 110 ✓

Q6 Mathematics

A sum of money lent at simple interest amounts to ₹720 after 2 years and to ₹1,020 after a further period of 5 years. What is the sum of money?

A. ₹600 ✓

B. ₹500

C. ₹200

D. ₹400

Q7 Mathematics

Find the value of $4 - \cfrac{5}{1+\cfrac{1}{3+\cfrac{1}{2+\frac{1}{4}}}}$

A. $\frac{1}{8}$ ✓

B. $\frac{1}{4}$

C. $\frac{2}{9}$

D. $\frac{8}{3}$

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Q8 Mathematics

The LCM of two co-prime numbers is 638. If one number is 29, then the other number is:

A. 32

B. 22 ✓

C. 11

D. 13

Q9 Mathematics

The value of $\frac{1}{4}+\frac{1}{4\times5}+\frac{1}{4\times5\times6}$, correct to four decimal places, is:

A. 0.3092

B. 0.3083 ✓

C. 0.3150

D. 0.3140

Q10 Mathematics

Three different containers contain a mixture of milk and water, measuring 403 litres, 434 litres and 465 litres, respectively. The biggest measure required to measure all the different quantities exactly is:

A. 41 litres

B. 32 litres

C. 31 litres ✓

D. 7 litres

Q11 Mathematics

Nikhil has a mean score of 95 in Maths after 4 quizzes. Then he scored 0 in the next Maths quiz. The new mean score is:

A. 67.2

B. 76 ✓

C. 76.2

D. 67

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Q12 Mathematics

Are the numbers 30, 40, 45 and 60 in proportion?

A. Yes, they are in proportion. ✓

B. No, they are not in proportion.

C. Only 30 and 40 are in proportion.

D. Only 45 and 40 are not in proportion.

Q13 Mathematics

The mass of five meteorites found on earth are 23.5 kg, 15 kg, 20 kg, 22 kg and 16 kg. For this data, which of the following measures is 19.3 kg?

A. Mode

B. Mean deviation

C. Mean ✓

D. Median

Q14 Mathematics

The value of $\sqrt{16+\sqrt{80+\sqrt{5000-4999}}}$ is:

A. 1

B. 5 ✓

C. 50

D. 25

Q15 Mathematics

Manish fixed 48 poles in order to fence a square. If the distance between 2 poles is 5 m, then what will be the area of the square, formed?

A. $3200\ m^2$

B. $3600\ m^2$ ✓

C. $3500\ m^2$

D. $4000\ m^2$

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Q16 Mathematics

Two adjacent angles form an angle of 100°. The larger angle is 20° less than five times the smaller angle. The larger angle is:

A. 90°

B. 75°

C. 80° ✓

D. 70°

Q17 Mathematics

If $\frac{1}{8}$ of a pencil is black, half of the remaining pencil is yellow and the remaining $3\frac{1}{2}$ cm of the pencil is blue, then what is the total length of the pencil?

A. 3 cm

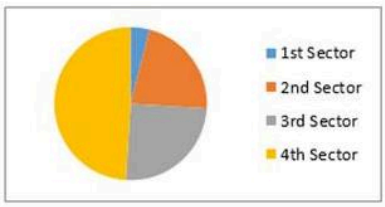
B. 2 cm

C. 8 cm ✓

D. 4 cm

Q18 Mathematics

The following pie chart shows the total ocean cover by four oceans, Arctic, Indian, Atlantic and Pacific. 1st sector: Arctic = 4%, 2nd sector: Indian = 22%, 3rd sector Atlantic = 25% and 4th sector Pacific = 49%. Based on the pie chart, answer the given question.



If the four oceans cover an area of almost 130 million square miles in total, then what area is covered by the Pacific Ocean?

A. 74 million square miles

B. 65 million square miles

C. 63.7 million square miles ✓

D. 64 million square miles

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Q19 Mathematics

The electricity bill of a certain establishment is partly fixed and partly variable depending on the number of units of electricity consumed. In a certain month when 540 units were consumed, the bill was ₹1,800. In another month when 620 units were consumed, the bill was ₹2,040. If in a month 500 units are consumed, then the bill for that month will be:

A. ₹1,840

B. ₹1,950

C. ₹1,680 ✓

D. ₹1,560

Q20 Mathematics

If $\frac{x}{y} = \frac{6}{5}$, then the value of $\frac{x^2 + y^2}{x^2 - y^2}$ is:

A. $\frac{61}{11}$ ✓

B. $\frac{60}{11}$

C. $\frac{11}{61}$

D. $\frac{60}{34}$

Q21 Mathematics

When an arm of an angle is extended to double its length, then the measure of the angle:

A. triples

B. becomes half

C. doubles

D. remains the same ✓

Q22 Mathematics

Find the degree measure of the angle subtended at the centre of a circle of radius 100 cm by an arc of length 22 cm.

A. $2° 36'$

B. $62° 36'$

C. $12° 36'$ ✓

D. $22° 36'$

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Q23 Mathematics

Three whole cakes weigh $4\frac{1}{2}$ lbs, $6\frac{3}{4}$ lbs and $7\frac{1}{5}$ lbs, respectively. Each cake has to be divided into pieces of equal weight. Each piece must be as heavy as possible. If one such piece is served to each guest, then what are the maximum number of guests that can be served?

A. 54

B. 72

C. 45

D. 41 ✓

Q24 Mathematics

1 L of water weighs 1 kg. How many cubic millimetres of water will weigh 0.1 g?

A. $1mm^3$

B. $10\ mm^3$

C. $1000\ mm^3$

D. $100\ mm^3$ ✓

Q25 Mathematics

Out of six consecutive numbers, the sum of the first three numbers is 27. What is the sum of the next three numbers?

A. 12

B. 63

C. 36 ✓

D. 10

Q26 Mathematics

An examination requires 33% marks in order to pass. A candidate who gets 210 marks fails by 21 marks. What are the total marks for the examination?

A. 400

B. 700 ✓

C. 350

D. 500

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Q27 Mathematics

The breadth of a rectangular plot of land is one-third of its length. If the perimeter of the plot is 240 m, then what is the length of the plot?

A. 70 m

B. 60 m

C. 90 m ✓

D. 95 m

Q28 Mathematics

If an investment of ₹1,000 amounts to ₹1,440 in 2 years when compounded annually, then what is the rate of compound interest?

A. 30%

B. 20% ✓

C. 0.2%

D. 40%

Q29 Mathematics

If the profit earned by selling an article for ₹1,560 is same as the loss incurred by selling the same article for ₹1,060, then what is the cost price of the article?

A. ₹2,130

B. ₹1,110

C. ₹1,210

D. ₹1,310 ✓

Q30 Mathematics

How many significant digits are there to the right of the decimal point in the product of 95.75 and 0.02554?

A. 4

B. 5

C. 3

D. 6 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

How many numbers between 500 and 700 are divisible by 11?

A. 63

B. 18 ✓

C. 108

D. 45

Q2 Mathematics

The area of the triangle formed by the line $2x - 4y - 7 = 0$ with the coordinate axis is:

A. $\frac{49}{8}$ unit^2

B. $\frac{49}{4}$ unit^2

C. $\frac{49}{2}$ unit^2

D. $\frac{49}{16}$ unit^2 ✓

Q3 Mathematics

The sum of squares of the first ten natural numbers is:

A. 300

B. 55

C. 385 ✓

D. 380

Q4 Mathematics

The average of four consecutive even integers is 27, what is the largest of these numbers?

A. 27

B. 96

C. 30 ✓

D. 24

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Q5 Mathematics

A train is travelling at the rate of 45 km/h. How many seconds it will take to cover a distance of $\frac{4}{5}$ km.

A. 64 seconds ✓

B. 36 seconds

C. 9 seconds

D. 124 seconds

Q6 Mathematics

A man types at the rate of 35 words per minute. How long will it take for him to type 987 words?

A. 28 mins 24 secs

B. 28 mins 12 secs ✓

C. 28 mins 20 secs

D. 28 mins 36 secs

Q7 Mathematics

If y=26, then what is the value of

$y\sqrt{y^3 - y^2}$?

A. 3280

B. 3380 ✓

C. 3580

D. 3480

Q8 Mathematics

A can lay railway tracks between two given stations in 16 days and B can do the same job in 12 days. With the help of C, they did the job in 4 days only. Considering this, C alone can do the job in:

A. $\frac{5}{48}$ days

B. $\frac{16}{5}$ days

C. 48 days

D. $\frac{48}{5}$ days ✓

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Q9 Mathematics

A father is 3 times as old as his son today. After 13 years the father will be twice as old as his son. The present age of the son is:

A. 8 years

B. 13 years ✓

C. None

D. 12 years

Q10 Mathematics

A man's health insurance premium for last year was ₹1,440. If he paid ₹1,512 this year, what is the percentage increase on his health insurance premium?

A. 5 % ✓

B. 4 %

C. 3%

D. 6 %

Q11 Mathematics

Find the value of $\frac{1}{1+\frac{1}{3}}-\frac{1}{1+\frac{1}{2}}$.

A. $\frac{1}{12}$ ✓

B. $\frac{1}{6}$

C. $\frac{-1}{6}$

D. $\frac{1}{3}$

Q12 Mathematics

If $x=\frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y=\frac{\sqrt{3}-1}{\sqrt{3}+1}$, then the value of x^2+y^2 is:

A. 14 ✓

B. 13

C. 10

D. 15

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Q13 Mathematics

If $\tan\theta = \frac{b}{a}$, then $\frac{a\cos\theta + b\sin\theta}{a\cos\theta - b\sin\theta} =$ _____

A. $\frac{a^2 - b^2}{a^2 + b^2}$

B. $\frac{a - b}{a + b}$

C. $\frac{a^2 + b^2}{a^2 - b^2}$ ✓

D. $\frac{a + b}{a - b}$

Q14 Mathematics

If you deposit ₹6,000 in a bank with 4% per year simple interest for 7 years then the simple interest received will be:

A. ₹7600

B. ₹7680

C. ₹1680 ✓

D. ₹1600

Q15 Mathematics

Simplify the following:

$18 - [6 - \{4 - (8 - 6 + 3)\}]$

A. 15

B. 13

C. 17

D. 11 ✓

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Q16 Mathematics

A alone can complete a piece of work in 15 days, while B alone can do it in 30 days, if the both of them work on alternate days, when will the work get completed?

A. Cannot be determined

B. 24 days

C. 20 days ✓

D. 18 days

Q17 Mathematics

The distance between two points $(a\cos\alpha, 0)$ and $(0, a\sin\alpha)$ is____.

A. a

B. |a| ✓

C. |2a|

D. 2a

Q18 Mathematics

The HCF and LCM of two numbers is 10^8 and $10^{12}7^3$ respectively. If one of the numbers is 10^{12}, then the other number is ____.

A. 10×7^3

B. $10^{10}7^3$

C. $10^{12}7^3$

D. 10^87^3 ✓

Q19 Mathematics

What will be cost price of a dress sold by a shop keeper if he made a profit of 30% when he sold the dress for ₹2,600.

A. ₹4,800

B. ₹2,000 ✓

C. ₹3,000

D. ₹3,650

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Q20 Mathematics

Find the compound interest on ₹7,500 at 4% per annum for 2 years.

A. ₹8,112

B. ₹612 ✓

C. ₹8,000

D. ₹621

Q21 Mathematics

The tenth term of the sequence 2, 5, 8,11, ……will be:

A. 28

B. 29 ✓

C. 32

D. 27

Q22 Mathematics

What is the greatest number that will divide 38, 45 , 52 and leave as remainders 2, 3 and 4 respectively?

A. 6 ✓

B. 7

C. 9

D. 5

Q23 Mathematics

Solve the following

$$\sin\left(cos^{-1}\frac{3}{5}\right)+\cos\left(tan^{-1}\frac{5}{12}\right)$$

A. $\frac{100}{65}$

B. $\frac{108}{65}$

C. $\frac{112}{65}$ ✓

D. $\frac{104}{65}$

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Q24 Mathematics

Find the mean for the data 1, 1, 1, 2, 4, 5, 5, 7, 8, 12.

A. 5

B. 4.6 ✓

C. 4

D. 4.5

Q25 Mathematics

If a cone has base with radius of 5 cm and height of 10 cm, then its volume (correct to 2 decimal places) is _____ cm^3. (Use $\pi = 3.14$)

A. 261. 70

B. 261.60

C. 261.67 ✓

D. 261.50

Q26 Mathematics

Find the correct expression for $5.\overline{46}$ in the fractional form.

A. $\frac{541}{99}$ ✓

B. $\frac{541}{900}$

C. $\frac{546}{99}$

D. $\frac{541}{100}$

Q27 Mathematics

If a circle has a radius of 4 cm then the area of the largest square that would fit inside the circle would be _____.

A. 64 cm^2

B. 16 cm^2

C. 30 cm^2

D. 32 cm^2 ✓

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Q28 Mathematics

A man purchased an item for ₹1,200, spent ₹300 on its repairs and sold it for ₹2,000. What is the profit percentage?

A. $33\frac{1}{3}\%$ ✓

B. 33%

C. 66.66%

D. 40%

Q29 Mathematics

If the radius of the circle $x^2 + y^2 - 6x + 8y + c = 0$ is 6, then the value of c is:

A. -10

B. -11 ✓

C. 11

D. 25

Q30 Mathematics

A bag has red and blue balls in the ratio 4 : 5. If the total number of balls is 81, then find the number of blue balls.

A. 90

B. 45 ✓

C. 20

D. 40

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

$42 \times (4 + 2) = (42 \times 4) + (42 \times 2)$

is an example of:

A. distributive property ✓

B. associative property

C. closure property

D. identity property

Q2 Mathematics

A man sold a radio set for ₹750 and gained one ninth of its cost price. Find the cost price of the radio and the percentage gain respectively.

A. ₹555 and $\frac{100}{9}$ %

B. ₹635 and $\frac{100}{9}$ %

C. ₹655 and $\frac{100}{9}$ %

D. ₹675 and $\frac{100}{9}$ % ✓

Q3 Mathematics

If x % of y is 2000 and y% of z is 4000, the relation between x and z will be:

A. $6z - 2 = 2x$

B. $2z = 7x$

C. $6z = \frac{x}{2}$

D. $z = 2x$ ✓

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Q4 Mathematics

If $2\frac{1}{2} + 3\frac{1}{2} + 4\frac{1}{2} = x$, then what will be the value of $x - 5\frac{1}{2}$?

A. 5 ✓

B. 8

C. 6

D. 4

Q5 Mathematics

Solve the following.

$1 - 1 + 1 - 1 + 1 - 1 + \ldots\ldots\ldots$ (101 times) $= ?$

A. 0

B. 1 ✓

C. 100

D. -1

Q6 Mathematics

There is a rectangular field of dimensions 100 m and 80 m respectively. If a path of uniform width 10 m runs around and inside it, then the area of path will be:

A. $3400\ m^2$

B. $3800\ m^2$

C. $3500\ m^2$

D. $3200\ m^2$ ✓

Q7 Mathematics

The HCF of $\frac{1}{3}$, $\frac{3}{4}$, $\frac{4}{5}$, $\frac{5}{6}$ and $\frac{6}{7}$ is:

A. $\frac{1}{420}$ ✓

B. $\frac{1}{560}$

C. $\frac{1}{460}$

D. $\frac{1}{360}$

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Q8 Mathematics

The mean of a and b is 350 and the ratio of a to b is 2 : 5. What is the value of $b - a$?

A. 400

B. 330

C. 300 ✓

D. 325

Q9 Mathematics

If the LCM of p and q is pq, then the numbers of p, q must be:

A. odd

B. even

C. prime

D. composite numbers

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q10 Mathematics

Tap A can fill a tank in 40 min and Tap B can empty the tank in 60 min. If the taps are opened at the same time, then the time taken to fill the tank will be:

A. 100 min

B. 150 min

C. 125 min

D. 120 min ✓

Q11 Mathematics

A started a business with a capital of ₹15000, B joined him after 2 months with a capital of ₹20,000. The ratio in which the profit at the end of the year divided between A and B is:

A. 9 : 10 ✓

B. 10 : 9

C. 9 : 8

D. 8 : 9

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Q12 Mathematics

What fraction of 1275 is 816?

A. $\frac{16}{25}$ ✓

B. $\frac{48}{72}$

C. $\frac{48}{75}$

D. $\frac{16}{24}$

Q13 Mathematics

A sum of money doubles itself in 10 years. In how many years will it be triple at the same rate of simple interest?

A. 10

B. 20 ✓

C. 15

D. 23

Q14 Mathematics

The paint in a container is sufficient to paint an area equal to 9.375 m^2. How many bricks, each measuring 22.5 cm x 10 cm x 7.5 cm can be painted with the paint in the container?

A. 100 ✓

B. 170

C. 150

D. 120

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Q15 Mathematics

Find the value of

$$\frac{1+\tan 75^0}{1-\tan 75^0}$$

A. $\sqrt{3}$

B. $\frac{1}{\sqrt{3}}$

C. $-\sqrt{3}$ ✓

D. $\frac{-2}{\sqrt{3}}$

Q16 Mathematics

The angles of a quadrilateral are in the ratios 3 : 5 : 7 : 9. The measure of the smallest angle is:

A. $45°$ ✓

B. $60°$

C. $62°$

D. $36°$

Q17 Mathematics

The product of first five whole numbers is:

A. 0 ✓

B. -120

C. 120

D. 10

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Q18 Mathematics

A and B can complete a task in 60 days and 40 days respectively. If C, who can complete the same task alone in 30 days, joins A & B working together after 3 days, then the number of days taken to complete the task will be:

A. $11\frac{2}{3}$ ✓

B. $11\frac{4}{3}$

C. 11

D. $11\frac{1}{3}$

Q19 Mathematics

A man invests ₹5,000 for three years at a certain rate of interest, compounded annually. At the end of the first year, it amounts to ₹5,600. Calculate the rate of interest per annum.

A. 13%

B. 12% ✓

C. 14%

D. 11%

Q20 Mathematics

The altitudes of two similar triangles are 4 cm and 6 cm. If the area of the larger triangle is 36 cm^2 , what will be the area of the other one?

A. $36\ cm^2$

B. $49\ cm^2$

C. $16\ cm^2$ ✓

D. $25\ cm^2$

Q21 Mathematics

Let 30 cm and 18 cm be the lengths of the two parallel sides of a trapezium and 24 cm be distance between these two sides. If the area of this trapezium is equal to the area of a square, then the perimeter of the square will be:

A. 66 cm

B. 75 cm

C. 87 cm

D. 96 cm ✓

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Q22 Mathematics

The LCM of 248 and 868 is 1736. What is the HCF?

A. 868

B. 124 ✓

C. 248

D. 1736

Q23 Mathematics

What will be the value of θ if

$\sqrt{3} \tan 2\theta - 3 = 0$?

A. $30°$ ✓

B. $60°$

C. $40°$

D. $90°$

Q24 Mathematics

Two positive numbers are in the ratio of 3 : 4 and the product of their LCM and HCF is 1200. The sum of the numbers is:

A. 90

B. 70 ✓

C. 80

D. 60

Q25 Mathematics

Find the greatest number that divides 130, 305 and 245 leaving remainders 2, 1 and 1 respectively?

A. 6

B. 4 ✓

C. 5

D. 7

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Q26 Mathematics

A, B and C can complete a task in 10, 15 and 18 days respectively. In how many days will all of them complete the same task working together?

A. 2

B. $5\frac{1}{2}$

C. $\frac{9}{2}$ ✓

D. 9

Q27 Mathematics

The value of

$$\left(\frac{2020}{2000}\right)^{-2008} \times \left(\frac{2020}{2000}\right)^{2008} \times 2020 \text{ is:}$$

A. 0

B. 2020 ✓

C. 2220

D. 220

Q28 Mathematics

A, B and C divided the profit in the ratio of 3 : 4 : 5. If their total investment is ₹1,44,000, then B's investment will be:

A. ₹64, 000

B. ₹60, 000

C. ₹48, 000 ✓

D. ₹36, 000

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Q29 Mathematics

If $\cos(\alpha + \beta) = 0$,

then $\sin(\alpha - \beta)$ can be reduced to

A. $\cos\beta$

B. $\sin 2\alpha$

C. $\sin\alpha$

D. $\cos 2\beta$ ✓

Q30 Mathematics

Two partners A and B started a business with the capitals of ₹12,000 and ₹18,000 respectively and made a profit of ₹1,800 at the end of the 1st year. Find the profit share of B.

A. ₹1,000

B. ₹720

C. ₹1200

D. ₹1,080 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If $\frac{x-y}{3} = \frac{x+y}{5} = \frac{xy}{8}$, then find the value of xy.

A. 14

B. 18

C. 12

D. 16 ✓

Q2 Mathematics

Two trains of length 200 m and 400 m run on parallel lines. When they run in the same direction, it takes 30 seconds for the train with the higher speed to overtake the other train, and when they travel in the opposite directions, it takes them 6 seconds to cross each other. What are the speeds (in km/h) of the two trains?

A. 280 and 140

B. 190 and 260

C. 216 and 144 ✓

D. 184 and 144

Q3 Mathematics

A and B walk around a circular path of 10 km in circumference, starting together from the same point in the same direction. If their speeds are 3 km/h and 2 km/h respectively, after how many hours will they be again at the starting point?

A. 5 h

B. 2 h

C. 10 h ✓

D. 3 h

Q4 Mathematics

A man buys a book for ₹60 and sells it for ₹90. What is his percentage gain?

A. 20%

B. 50% ✓

C. 30%

D. 60%

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Q5 Mathematics

The sum of the first 12 multiples of 6 is:

A. 844

B. 468 ✓

C. 546

D. 648

Q6 Mathematics

If 25% of first number is three times 50% of second number then what is the ratio of the first number to the second number?

A. 1 : 6

B. 2 : 3

C. 3 : 1

D. 6 : 1 ✓

Q7 Mathematics

A sum was invested for 3 years on compound interest at 6%, 12% and 18% in first, second and third year respectively. The sum amounts to ₹20,000 in 3 years. Find the principal amount.

A. ₹13,572.46

B. ₹14,276.58 ✓

C. ₹10,276.43

D. ₹12,276.12

Q8 Mathematics

If $x^4 + \frac{1}{x^4} = 322$, then $x^3 - \frac{1}{x^3} = ?$

A. 84

B. 76 ✓

C. 67

D. 70

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Q9 Mathematics

The radius of a circle is equal to the diagonal of a square. If the area of the square is 32 sq units, then the area of the circle is:

A. 16π sq units

B. 9π sq units

C. 62π sq units

D. 36π sq units

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q10 Mathematics

If $\tan\theta - \cot\theta = x$ and $\cos\theta - \sin\theta = y$, find the value of $(x^2 + 4)(y^2 - 1)^2$.

A. 9

B. 2

C. 4 ✓

D. 3

Q11 Mathematics

The ratio of two numbers is 4 : 5. If 6 is added to both the numbers, then their ratio becomes 6 : 7. Find the smallest original number (before addition).

A. 7

B. 12 ✓

C. 24

D. 6

Q12 Mathematics

What will be the simple interest on a sum of ₹2,000 for 4 years at a rate of 1 paisa per rupee per month?

A. ₹609

B. ₹690

C. ₹900

D. ₹960 ✓

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Q13 Mathematics

The remainder in the expression $27\frac{3}{4}$ is:

A. 4

B. 3 ✓

C. 8

D. 6

Q14 Mathematics

Arrange the given fractions in decreasing order.

$\frac{7}{8}, \frac{8}{9}, \frac{9}{10}$

A. $\frac{7}{8}, \frac{8}{9}, \frac{9}{10}$

B. $\frac{9}{10}, \frac{7}{8}, \frac{8}{9}$

C. $\frac{8}{9}, \frac{7}{8}, \frac{9}{10}$

D. $\frac{9}{10}, \frac{8}{9}, \frac{7}{8}$ ✓

Q15 Mathematics

An object is in the form of a trapezium with height 5 m and parallel sides being 4 m and 6 m. What is the cost of painting the object if the rate of painting is ₹50 per square metre.

A. ₹1,000/-

B. ₹1,250/- ✓

C. ₹1,200/-

D. ₹800/-

Q16 Mathematics

If the median and mean are 36 and 35 respectively, find the mode.

A. 30

B. 38 ✓

C. 34

D. 32

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Q17 Mathematics

If $cosec^4\,\theta = 49 + cot^4\theta$, what is the value of $\sin\theta$?

A. $\frac{1}{8}$

B. $\frac{1}{5}$ ✓

C. $\frac{1}{6}$

D. $\frac{1}{7}$

Q18 Mathematics

A can type 50 words in 1 min and B can type 40 words in 1 min. First A typed for 1 min then B typed for 1 min and so on. In this way typing alternately they typed 980 words. The time taken by them in typing these 980 words was:

A. 20 min 15 s

B. 21 min 45 s ✓

C. 21 min 80 s

D. 20 min 35 s

Q19 Mathematics

The square root of 18769 consists of how many digits?

A. 2

B. 5

C. 4

D. 3 ✓

Q20 Mathematics

If one angle of a parallelogram is 30° less than twice the measure of the smallest angle, then the measure of the largest angle of the parallelogram is:

A. 110° ✓

B. 90°

C. 120°

D. 105°

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Q21 Mathematics

What is the duplicate ratio of 15 : 12?

A. 150 : 120

B. 212 : 154

C. 225 : 144 ✓

D. 45 : 36

Q22 Mathematics

If $\sqrt{x} + \frac{2}{5} \times 70 = 20 \times \frac{1}{4} \times 7$, then the value of x is:

A. 46

B. 48

C. 49 ✓

D. 50

Q23 Mathematics

If the numerator of a fraction is decreased by 80% and the denominator of the fraction is decreased by 60%, then the resultant fraction is $\frac{5}{6}$. What is the original fraction?

A. $\frac{3}{5}$

B. $\frac{7}{3}$

C. $\frac{5}{3}$ ✓

D. $\frac{6}{5}$

Q24 Mathematics

A shopkeeper has 50 litres of oil in one can and 35 litres of oil in another. The maximum capacity of the container that can measure the oil of either can exact number of times is:

A. 35 litres

B. 5 litres ✓

C. 15 litres

D. 10 litres

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Q25 Mathematics

Select the option that expresses $5.\overline{6}$ as a fraction.

A. $\frac{51}{90}$

B. $\frac{50}{90}$

C. $\frac{57}{90}$

D. $\frac{61}{90}$

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q26 Mathematics

The HCF of two numbers is 20 and their LCM is 400. If one of the numbers is 80, then the other number is:

A. 80

B. 150

C. 120

D. 100 ✓

Q27 Mathematics

The Mean of 6 numbers is 18. If one more number is included, the mean of the 7 numbers will be 20. What is the number that is included?

A. 30

B. 32 ✓

C. 20

D. 10

Q28 Mathematics

ABC is a right-angled triangle. If the lengths of two sides containing the right angle are 4 cm and 3 cm, the radius of its incircle is:

A. 4 cm

B. 2 cm

C. 1 cm ✓

D. 3 cm

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Q29 Mathematics

One-fourth part of a pencil is black, half of the remaining part is green and the rest of the pencil is yellow. If the length of the yellow part is $1\frac{1}{2}$ cm, then find the length of the pencil.

A. 7 cm

B. 6 cm

C. 5 cm

D. 4 cm ✓

Q30 Mathematics

A man purchased 20 dozen mangoes for ₹1,000. Out of these, 40 mangoes were rotten and could not be sold. At what rate per dozen should he sell the remaining mangoes to make a profit of 30%?

A. ₹78 ✓

B. ₹80

C. ₹72

D. ₹70

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the value of $\sin 78^\circ + \cos 132^\circ$

A. $\sin 18^\circ$ ✓

B. $\cos 18^\circ$

C. $\cos 42^\circ$

D. $\sin 42^\circ$

Q2 Mathematics

Find the two-digit number such that the sum of its digits is 8 and the digits of the number get reversed when 36 is added to it.

A. 35

B. 26 ✓

C. 71

D. 62

Q3 Mathematics

Calculate the value of $\sqrt{80} + 4\sqrt{5}$ if $2\sqrt{5} + \sqrt{125} = 7x$

A. 6x

B. 9x

C. 8x ✓

D. 7.5x

Q4 Mathematics

Gold and silver are melted together in the ratio 8 : 12. If 30 kg of gold is consumed then find the weight of the melted mixture.

A. 75 kg ✓

B. 60 kg

C. 58 kg

D. 70 kg

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Q5 Mathematics

Find the Highest Common Factor (H.C.F) of 108, 288 and 360.

A. 24

B. 36 ✓

C. 34

D. 26

Q6 Mathematics

A sum of money increases to ₹7,500 after 5 years and ₹9,200 after 7 years respectively at the same rate of simple interest. Find the approximate rate of interest per annum.

A. 28.3%

B. 27.4%

C. 25.3%

D. 26.2% ✓

Q7 Mathematics

In an examination, 45% of the students qualified and 79750 are not qualified. How many students appeared for the examination?

A. 145000 ✓

B. 145250

C. 154000

D. 140000

Q8 Mathematics

If $x^2 - 1$ is a factor of $ax^4 + bx^3 + cx^2 + dx + e$, then which of the following is a possible relation between the coefficients of powers of x

A. $a + c + e = b + d$ ✓

B. $a + b + c = d + e$

C. $b + c + d = a + e$

D. $a + b + e = c + d$

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Q9 Mathematics

If a sum on compound interest becomes 4 times in 3 years, then with the same interest rate, the sum will become 64 times in:

A. 8 years

B. 15 years

C. 12 years

D. 9 years ✓

Q10 Mathematics

Calculate the least perfect square, which is exactly divisible by each of 2, 5, 7, 8 and 10.

A. 19000

B. 18600

C. 19200

D. 19600 ✓

Q11 Mathematics

Calculate the positive number which when added by 15 is equal to 100 times the reciprocal of the number.

A. 10

B. 20

C. 5 ✓

D. 15

Q12 Mathematics

If the sum of five consecutive multiples of 2 is 660, then find the largest number.

A. 125

B. 162

C. 130

D. 136 ✓

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Q13 Mathematics

The sum of the first 20 terms of the series $\frac{1}{5\times6}+\frac{1}{6\times7}+\frac{1}{7\times8}+\cdots$ is:

A. 1.6

B. 16

C. 0.016

D. 0.16 ✓

Q14 Mathematics

Find the least number which when divided by 5 leaves no remainder, when divided by 4 leaves a remainder of 1, but when divided by 6 or 7, leaves a remainder of 5.

A. 400

B. 450

C. 425 ✓

D. 430

Q15 Mathematics

A man buys a cycle for ₹1600 and sells it at a loss of 20%. What is the selling price of the cycle?

A. ₹1330

B. ₹1280 ✓

C. ₹1120

D. ₹1060

Q16 Mathematics

In triangle ABC, if $\sin A\cos B=\frac{1}{4}$ and $3\tan A=\tan B$, then $\cot^2 A$ is equal to:

A. 3 ✓

B. 4

C. 2

D. 5

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Q17 Mathematics

A student goes to his college from his hostel at the speed of 4 km/h and returns at the speed of 3 km/h. If he takes 7 h in going and coming, the distance between his college and hostel is:

A. 12 km ✓

B. 15 km

C. 16 km

D. 13 km

Q18 Mathematics

In a rhombus ABCD, if $\angle ACB = 40°, then\ \angle ADB = ?$

A. $70°$

B. $50°$ ✓

C. $45°$

D. $60°$

Q19 Mathematics

If $x > 1$, and $x + \frac{1}{x} = \sqrt{29}$, what is the value of $x - \frac{1}{x}$?

A. 4

B. 2

C. 5 ✓

D. 3

Q20 Mathematics

The least value of $2\sin^2\theta + 3\cos^2\theta$ is:

A. 1

B. 5

C. 3

D. 2 ✓

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Q21 Mathematics

What is the difference between the biggest and the smallest fraction among $\frac{2}{3}, \frac{3}{4}, \frac{4}{5}$ and $\frac{5}{6}$?

A. $\frac{1}{20}$

B. $\frac{1}{30}$

C. $\frac{1}{12}$

D. $\frac{1}{6}$ ✓

Q22 Mathematics

Out of 500 students in a college, 350 play cricket,125 play kabaddi, 75 neither play cricket nor play kabaddi. Find the percentage of the number of the students who play both kabaddi and cricket.

A. 15%

B. 12%

C. 10% ✓

D. 20%

Q23 Mathematics

Calculate the total surface area of a cone if its radius is $\frac{r}{4}$ and slant Height is $4l$.

A. $2\pi r(l+r)$

B. $2\pi rl$

C. $\pi r\left(l+\left(\frac{r}{16}\right)\right)$ ✓

D. $\pi r(l+r)$

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Q24 Mathematics

A salesman offers 20% additional discount, after offering an initial discount of 25% on the labelled rate of a laptop. If the final sale price of the laptop is ₹18,000, then what was its labelled rate?

A. ₹40,000

B. ₹28,000

C. ₹35,000

D. ₹30,000 ✓

Q25 Mathematics

P is the mid-point of side BC of a parallelogram ABCD such that $\angle BAP = \angle DAP$.

If AD = 10 cm, then CD = ?

A. 10 cm

B. 8 cm

C. 5 cm ✓

D. 6 cm

Q26 Mathematics

8 boys and 12 girls together can finish a project work in 5 days. If it takes 50 days for one boy alone to finish the same project, how many days are required for one girl alone to complete the same project work?

A. 150

B. 275

C. 300 ✓

D. 200

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Q27 Mathematics

Suresh can finish a job in 10 days and Ramesh can finish it in 12 days. Calculate the fraction of the job that is remaining after they work on it together for 4 days.

A. $\frac{8}{15}$

B. $\frac{7}{15}$

C. $\frac{4}{15}$ ✓

D. $\frac{1}{10}$

Q28 Mathematics

Find the value of $\frac{0.5 \times 0.5 + 0.09 - 0.15}{0.125 + 0.027}$

A. $\frac{4}{5}$

B. $\frac{5}{4}$ ✓

C. $\frac{5}{6}$

D. $\frac{3}{4}$

Q29 Mathematics

Find the value of r such that the mean of the first r odd natural numbers is $\frac{r^2}{16}$.

A. 16 ✓

B. 18

C. 9

D. 27

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Q30 Mathematics

Calculate the greatest possible length which can be used to measure exactly the lengths 220 cm, 260 cm, and 300 cm.

A. 20 cm ✓

B. 15 cm

C. 10 cm

D. 25 cm

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The mean and median of 7 observations are 10 and 9, respectively. If 1 is subtracted from each observation, then the new mean and the new median will respectively be:

A. 7 and 6

B. 8 and 9

C. 9 and 8 ✓

D. 4 and 3

Q2 Mathematics

Find the mean proportional between 16 and 81.

A. 25

B. 48

C. 63

D. 36 ✓

Q3 Mathematics

The value of $\sin 1^\circ \sin 2^\circ \sin 3^\circ \ldots \sin 180^\circ \ldots \sin 196^\circ$ is:

A. $\frac{1}{4}$

B. $\frac{1}{2}$

C. 0 ✓

D. $\frac{1}{3}$

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Q4 Mathematics

If the difference between the areas of the circumcircle and the incircle of an equilateral triangle is $66\ \text{cm}^2$, then the area of the triangle is:

A. $2\sqrt{3}\ \text{cm}^2$

B. $10\sqrt{3}\ \text{cm}^2$

C. $21\sqrt{3}\ \text{cm}^2$ ✓

D. $20\sqrt{3}\ \text{cm}^2$

Q5 Mathematics

The square root of $1\frac{11}{25}$ is:

A. $2\frac{1}{5}$

B. $1\frac{3}{5}$

C. $1\frac{1}{5}$ ✓

D. $1\frac{2}{5}$

Q6 Mathematics

A bus covers the first 50 km of its journey in 95 min and covers the remaining 70 km in 85 min. What is the average speed of the bus?

A. 40 km/h ✓

B. 20 km/h

C. 80 km/h

D. 50 km/h

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Q7 Mathematics

If the numerator of a fraction is increased by 80% and the denominator of the fraction is increased by 120%, then the resultant fraction is $\frac{7}{22}$. What is the original fraction?

A. $\frac{7}{18}$ ✓

B. $\frac{7}{17}$

C. $\frac{5}{17}$

D. $\frac{5}{18}$

Q8 Mathematics

The ratio of two numbers is 4 : 5 and their HCF is 3. Their LCM is:

A. 15

B. 80

C. 60 ✓

D. 20

Q9 Mathematics

If $(x+y):(x-y)=7:3$, then find $(x^2+y^2):(x^2-y^2)$.

A. 21 : 29

B. 20 : 29

C. 29 : 21 ✓

D. 10 : 4

Q10 Mathematics

The total number of students in a school is 240. If the number of boys in the school is 135, then what is the ratio of the total number of girls to the total number of boys in the school?

A. 3 : 9

B. 3 : 7

C. 7 : 9 ✓

D. 9 : 7

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Q11 Mathematics

The angles of a quadrilateral are in the ratio of 1 : 2 : 3 : 4. What is the measure of the greatest of these angles?

A. $144°$ ✓

B. $36°$

C. $120°$

D. $160°$

Q12 Mathematics

Solve the following.

$$\frac{4+3\times3-2}{4-3\times(3-2)}=?$$

A. 12

B. 2

C. 11 ✓

D. 10

Q13 Mathematics

Find the value of $2.\overline{43}-3.\overline{04}+4.\overline{44}$

A. 3.63

B. 3.60

C. 3.83

D. $3.\overline{83}$ ✓

Q14 Mathematics

The number of revolutions a wheel of radius 21 cm makes in travelling a distance of 198 m is:

A. 198

B. 140

C. 120

D. 150 ✓

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Q15 Mathematics

The mean of 10 observations is 25. On checking, it was found that two of the observations were wrongly copied as 6 and 9. If the wrong observations are replaced by correct values 4 and 5, then the correct mean will be:

A. 22.4

B. 24.4 ✓

C. 24.3

D. 23.4

Q16 Mathematics

The work done by a woman in 6 h is equal to the work done by a man in 4 h and by a boy in 8 h. Working 8 h per day, if 8 women can complete the work in 10 days, then in how many days can 10 women, 10 men and 10 boys together finish the same work working 8 h per day?

A. $2\frac{1}{13}$

B. $2\frac{6}{13}$ ✓

C. $6\frac{2}{13}$

D. $1\frac{1}{13}$

Q17 Mathematics

If $2x - 3y = 7$ and $\frac{x}{x+y} = \frac{5}{6}$, then what is the value of $x - y$?

A. 4 ✓

B. 7

C. 6

D. $\frac{1}{5}$

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Q18 Mathematics

The sum of two numbers is 60, and their difference is $\frac{1}{6}$ of their sum. Their LCM is:

A. 175 ✓

B. 100

C. 200

D. 150

Q19 Mathematics

Anil purchases 12 apples for ₹50 and sells 8 apples from it for ₹50. Find the percentage gain.

A. 50% ✓

B. 20%

C. 30%

D. 40%

Q20 Mathematics

If $\frac{x}{49} = \frac{196}{x}$, find the value of 'x'.

A. 99

B. 98 ✓

C. 100

D. 49

Q21 Mathematics

If $a = \frac{3+\sqrt{5}}{3-\sqrt{5}}$ and $b = \frac{3-\sqrt{5}}{3+\sqrt{5}}$, then find the value of $a^2 + b^2 - ab$.

A. 46 ✓

B. 41

C. 42

D. 40

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Q22 Mathematics

If the sum of two numbers is 24 and the difference between them is 10, Then what is the value of two times the product of the numbers?

A. 328

B. 239

C. 238 ✓

D. 832

Q23 Mathematics

How much amount of money (in ₹) at compound interest will amount to ₹5,000 in 3 years if the rate of interest is 2% for the 1^{st} year, 3% for the 2^{nd} year and 4% for the 3^{rd} year?

A. $\frac{5000}{1.2 \times 1.3 \times 1.4}$

B. 5000

C. $\frac{5000}{1.02 \times 1.03 \times 1.04}$ ✓

D. $\frac{5000}{1.24}$

Q24 Mathematics

If 30% of x is equal to five-sixth of y. Find $x : y$

A. 25 : 9 ✓

B. 9 : 25

C. 5 : 3

D. 3 : 5

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Q25 Mathematics

If $\sec\theta + \tan\theta = 2$, then $\sec\theta$ is equal to:

A. $\frac{5}{4}$ ✓

B. $\frac{1}{4}$

C. $\frac{1}{2}$

D. $\frac{3}{4}$

Q26 Mathematics

If a, b and c are the sides of a triangle and $a^2 + b^2 + c^2 = ab + bc + ca$, then the triangle is:

A. equilateral ✓

B. right-angled

C. isosceles

D. obtuse-angled

Q27 Mathematics

What is the sum of the first 12 multiples of 4?

A. 316

B. 312 ✓

C. 324

D. 308

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Q28 Mathematics

Which of the following is the greatest number?

A. $\frac{15}{12}$

B. $\frac{25}{12}$ ✓

C. $\frac{13}{14}$

D. $\frac{7}{18}$

Q29 Mathematics

A takes thrice the time taken by B and five times the time taken by C to complete a work. Working together, they can complete the work in 5 days. Find the number of days taken by A to complete the work alone.

A. 30

B. 20

C. 40

D. 45 ✓

Q30 Mathematics

In a school, there were 1400 boys and 600 girls. 40% of girls and 60% of boys passed in the examination. What is the percentage of failed candidates?

A. 46% ✓

B. 65%

C. 72%

D. 63%

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The ratio of the areas of two triangles is 4 : 3 and the ratio of their heights is 3 : 4. Find the ratio of their bases.

A. 14 : 9

B. 16 : 3

C. 16 : 9 ✓

D. 12 : 7

Q2 Mathematics

If the interior angles of a pentagon are in the ratio 1 : 3 : 5 : 7 : 11, then the measure of the smallest interior angle is:

A. 10°

B. 20° ✓

C. 25°

D. 15°

Q3 Mathematics

The value of the expression

$\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\left(1+\frac{1}{5}\right)\cdots\left(1+\frac{1}{n-1}\right)$ is:

A. $\left(\frac{n}{3}\right)$ ✓

B. $\left(\frac{1}{3}\right)$

C. $\left(1+\frac{1}{n}\right)$

D. $\left(\frac{n}{n-1}\right)$

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Q4 Mathematics

A vendor sold 16 clips for a rupee and got 25% profit. How many clips did he buy for a rupee?

A. 20 ✓

B. 10

C. 25

D. 15

Q5 Mathematics

The sum of $3.\overline{26} - 2.\overline{14} + 1.\overline{33}$ is:

A. $2.\overline{45}$ ✓

B. $2.\overline{25}$

C. $2.\overline{15}$

D. $2.\overline{55}$

Q6 Mathematics

If $\left(x + \frac{1}{x}\right) = 7$, then $\left(x - \frac{1}{x}\right)$ is equal to:

A. $2\sqrt{5}$

B. $\sqrt{5}$

C. $3\sqrt{5}$ ✓

D. $5\sqrt{5}$

Q7 Mathematics

Which of the following numbers is NOT prime?

A. 811

B. 317

C. 817 ✓

D. 313

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Q8 Mathematics

Solve the given equation.

$$\frac{3 + 4 \div 2 \times 3}{4 + 3 \times 2 \div 3} =$$

A. $\frac{3}{5}$

B. $\frac{5}{4}$

C. $\frac{3}{4}$

D. $\frac{3}{2}$ ✓

Q9 Mathematics

Find out the mean for the given data.

6.7, 7.2, 8.7, 9.2, 10.1

A. 8.39

B. 8.38 ✓

C. 8.36

D. 8.37

Q10 Mathematics

What would be the highest value of X in the given equation?

5X1 + 6Y7 + 3Z3 = 1471

A. 5

B. 3

C. 6 ✓

D. 7

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Q11 Mathematics

Solve the given equation.

$\sqrt{12321} \times \sqrt{?} = 13431$

A. 14631

B. 14541

C. 14641 ✓

D. 14621

Q12 Mathematics

The values of the mode and the mean are 7.52 and 9.83 respectively in a moderately asymmetrical distribution. Find the median of the distribution.

A. 9.00

B. 8.86

C. 8.90

D. 9.06 ✓

Q13 Mathematics

Find the highest common factor of 36 and 48.

A. 18

B. 12 ✓

C. 8

D. 6

Q14 Mathematics

The ratio between the speeds of two trains is 7 : 5. If the second train runs 400 km in 4 h, then the speed of the first train is:

A. 140 km/h ✓

B. 148 km/h

C. 145 km/h

D. 142 km/h

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Q15 Mathematics

If the Cost price of an article is 40% of its selling price, then what percent is the selling price of its cost price?

A. 250% ✓

B. 200%

C. 150%

D. 175%

Q16 Mathematics

The base and the altitude of a right-angled triangle are 15 cm and 8 cm respectively. What is the altitude from the opposite vertex to its hypotenuse?

A. $7\frac{1}{15}$ cm

B. $1\frac{7}{17}$ cm

C. $7\frac{1}{17}$ cm ✓

D. $7\frac{11}{17}$ cm

Q17 Mathematics

Select the number that can replace the question mark (?) in the following equation.

120% of 3125 – 90% of ? = 150

A. 40

B. 400

C. 4000 ✓

D. 3600

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Q18 Mathematics

If $\tan\theta = -\frac{12}{5}$, then the value of $\sin\theta$ is:

A. $\sqrt{\frac{12}{13}}$

B. $\frac{\sqrt{12}}{13}$

C. $-\frac{12}{13}$ ✓

D. $-\frac{12}{15}$

Q19 Mathematics

At what rate of simple interest will a sum of money triple itself in 8 years?

A. 20%

B. 35%

C. 25% ✓

D. 30%

Q20 Mathematics

If $\cos\theta = \cos\alpha$ then general solution for θ is:

A. $\theta = 2n\pi \pm \alpha, n\epsilon Z$ ✓

B. $\theta = \frac{3n\pi}{2} \pm \alpha, n\epsilon Z$

C. $\theta = n\pi \pm \alpha, n\epsilon Z$

D. $\theta = \frac{n\pi}{2} + \alpha, n\epsilon Z$

Q21 Mathematics

A pendulum strikes 2 times in 3 s, and another pendulum strikes 5 times in 7 s. If both pendulums start striking at the same time, how many simultaneous strikes will take place in 1 min?

A. 4

B. 2 ✓

C. 5

D. 3

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Q22 Mathematics

Find the value of $\frac{1}{1.4} + \frac{1}{4.7} + \frac{1}{7.10} + \cdots + \frac{1}{47.50}$.

A. $\frac{47}{150}$

B. $\frac{49}{50}$

C. $\frac{49}{150}$ ✓

D. $\frac{47}{50}$

Q23 Mathematics

A and B together can finish a piece of work in 10 days. B and C together can finish it in 15 days. A and C together can finish it in 18 days. In how many days will A, B and C finish it together?

A. 10 days

B. 7 days

C. 9 days ✓

D. 8 days

Q24 Mathematics

If $(m + n) : (m - n) = 7 : 3$,then $(m^3 + n^3) : (m^3 - n^3) = ?$

A. 117 : 133

B. 133 : 117 ✓

C. 17 : 133

D. 117 : 13

Q25 Mathematics

A circle of radius 7 cm circumscribed an equilateral triangle. The length of the side of the equilateral triangle is:

A. $7\sqrt{2}$ cm

B. $5\sqrt{3}$ cm

C. 7 cm

D. $7\sqrt{3}$ cm ✓

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Q26 Mathematics

Solve the given equation.

$$\frac{3+\sqrt{5}}{3-\sqrt{5}} + \frac{3-\sqrt{5}}{3+\sqrt{5}} + \frac{\sqrt{5}-1}{\sqrt{5}+1} = ?$$

A. $\frac{17-\sqrt{5}}{2}$ ✓

B. $\frac{13-\sqrt{5}}{2}$

C. $\frac{15-\sqrt{5}}{2}$

D. $\frac{16-\sqrt{5}}{2}$

Q27 Mathematics

Find the total amount (in ₹) on ₹4,500 at 12% per annum for 2 years and 8 months compounded annually.

A. ₹6,069.38

B. ₹6,096.38 ✓

C. ₹6,095.95

D. ₹6,097.28

Q28 Mathematics

A number reduced by 37% becomes 315. By what percentage should it be increased so that it becomes 800?

A. 63%

B. 60% ✓

C. 65%

D. 62%

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Q29 Mathematics

The speed of a bullet train is 35% more than that of an electric train. If the electric train takes 3 h 45 min for a fixed distance, what will be the time taken by the bullet train to cover the same distance?

A. $2\frac{7}{9}$ h ✓

B. $12\frac{7}{9}$ h

C. $2\frac{5}{9}$ h

D. $7\frac{2}{9}$ h

Q30 Mathematics

The traffic lights at three different signal points change after every 35 s, 45 s and 75 s respectively. If all change simultaneously at 6:20:15 hours, then at what hours will they change again simultaneously?

A. 6:46:30 ✓

B. 10:30:30

C. 6:40:35

D. 8:18:20

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

When 25^{25} is divided by 26, then the remainder is:

A. 2

B. 1

C. 24

D. 25 ✓

Q2 Mathematics

In a triangle ABC, tanA + tanB + tanC = ?

A. tanA.tanB.tanC ✓

B. 1

C. tanA.tanB + tanB.tanC + tanC.tanA

D. -tanA.tanB.tanC

Q3 Mathematics

The compound interest on a sum of ₹7,500 for 2 years at 4 % p.a. is

A. ₹612 ✓

B. ₹850

C. ₹750

D. ₹515

Q4 Mathematics

An express train travelled at an average speed of 100 km/h, stopping for 3 min after every 75 km. How much time it took the express train to travel 600 km?

A. 370 min

B. 308 min

C. 384 min

D. 381 min ✓

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Q5 Mathematics

If $3a + 4b = 2$ and $ab = \frac{1}{36}$, then $27a^3 + 64b^3$ is:

A. 2

B. 6 ✓

C. 8

D. 4

Q6 Mathematics

Solve the following.

$$8 \div 8 \times \frac{8+8}{8 \div 8 \times 8 + 8} = ?$$

A. $\frac{1}{128}$

B. 64

C. 1 ✓

D. 128

Q7 Mathematics

The LCM of two prime numbers, a and b $(a > b > 1)$, is 697. The value of a – 2b is:

A. 5

B. 8

C. 6

D. 7 ✓

Q8 Mathematics

40% of a number is 46 less than $\frac{4}{5}$ of that number. Find the number.

A. 110

B. 85

C. 115 ✓

D. 105

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Q9 Mathematics

If 9 students are standing on a circular path, then the probability that 2 of them are always standing together is:

A. $\frac{1}{3}$

B. $\frac{7}{8}$

C. $\frac{2}{7}$

D. $\frac{1}{4}$ ✓

Q10 Mathematics

The value of the largest four-digit perfect square number divided by the smallest four-digit perfect square number will be:

A. equal to 10

B. less than 10 ✓

C. more than 10

D. equal to 9

Q11 Mathematics

If the difference between the compound interest and the simple interest on a certain sum of money at 8% p.a. for 2 years is ₹240, then the sum of money is:

A. ₹37,000

B. ₹38,000

C. ₹38,500

D. ₹37,500 ✓

Q12 Mathematics

A, B and C completed a job costing ₹1,800. A worked for 6 days, B worked for 4 days and C worked for 9 days. If their daily wages are in the ratio of 5 : 6 : 4, then how much will A get paid?

A. ₹400

B. ₹1,000

C. ₹800

D. ₹600 ✓

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Q13 Mathematics

A tank, 4 m long, 2 m wide and 1.5 m deep, is dug in a field 22 m long and 14 m wide. If the earth dug out is evenly spread out over the remaining field, then the level of the field will rise by:

A. 4.75 cm

B. 4 cm ✓

C. 5 cm

D. 3.5 cm

Q14 Mathematics

The mean of three numbers is 32. The range of this data set is 28 while the difference between the two smallest numbers is 8. The greatest of the three numbers is:

A. 52

B. 51

C. 50

D. 48 ✓

Q15 Mathematics

In a triangle ABC, points D and E are on the sides AB and AC such that DE is parallel to BC and $\frac{AD}{BD} = \frac{3}{5}$. If AC = 4 cm, then AE = ?

A. 2 cm

B. 1.5 cm ✓

C. 1.8 cm

D. 2.4 cm

Q16 Mathematics

8 men working 9 hours a day can complete a task in 20 days. How long will 7 men working 10 hours a day take to complete the same task?

A. $\frac{21}{2}$ days

B. $\frac{103}{5}$ days

C. $\frac{144}{7}$ days ✓

D. 21 days

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Q17 Mathematics

If 60 % of a number is added to 36, gives the number itself then the number is:

A. 100

B. 90 ✓

C. 80

D. 75

Q18 Mathematics

The product of the LCM and the HCF of two positive numbers is 32 and the difference of the numbers is 4. The sum of the same numbers is:

A. 10

B. 16

C. 12 ✓

D. 14

Q19 Mathematics

If $a : b = 3 : 7$, then $(4a + 5b) : (9a + 2b) = ?$

A. 37 : 31

B. 47 : 41 ✓

C. 31 : 37

D. 41 : 47

Q20 Mathematics

Two sides of a triangle are of lengths 4 cm and 10 cm. If the length of the third side is a cm, then:

A. $6 < a < 12$

B. $a < 6$

C. $6 < a < 14$ ✓

D. $a > 5$

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Q21 Mathematics

If $a^2 + b^2 + c^2 + 3 = 2(a + b + c)$, then the value of $(a + b + c)$ is:

A. 4

B. 2

C. 3 ✓

D. 5

Q22 Mathematics

If the sum of two numbers is r and their quotient is $\frac{s}{t}$, then the numbers are:

A. $\frac{sr}{s+t}$ and $\frac{tr}{s+t}$ ✓

B. $\frac{rs}{t}$ and $\frac{ts}{r}$

C. $\frac{r}{s}$ and $\frac{r}{t}$

D. $\frac{r-s}{t}$ and $\frac{r-t}{s}$

Q23 Mathematics

If the side of an equilateral triangle is 2 cm, then find the area and the altitude of the triangle.

A. Area $= \frac{2}{3}$ cm^2 and altitude $= \sqrt{3}$ cm

B. Area $= \frac{3}{2}$ cm^2 and altitude $= \sqrt{3}$ cm

C. Area $= \sqrt{3}$ cm^2 and altitude $= \frac{2}{3}$ cm

D. Area $= \sqrt{3}$ cm^2 and altitude $= \sqrt{3}$ cm ✓

Q24 Mathematics

Three positive numbers are in the ratio of 1 : 2 : 5 and their LCM is 120. The HCF of the same numbers is:

A. 14

B. 16

C. 10

D. 12 ✓

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Q25 Mathematics

A dealer offers a discount of 10 % on the marked price of an article and still makes a profit of 20 %. If the marked price is ₹1,200, then the cost price is:

A. ₹950

B. ₹800

C. ₹850

D. ₹900 ✓

Q26 Mathematics

If the product of two co-primes is 104, then their LCM:

A. is equal to their HCF

B. is 1

C. is 104 ✓

D. can't be determined

Q27 Mathematics

A large cube is formed by melting of three smaller cubes of sides 3 cm, 4 cm and 5 cm each. The ratio of the surface areas of the three smaller cubes together to the larger cube is:

A. 9 : 4

B. 25 : 18 ✓

C. 27 : 64

D. 18 : 25

Q28 Mathematics

A dealer marks his goods 20% above the cost price. He then allows a discount on it and makes a profit of 8%. Find the rate of discount offered by the dealer.

A. 12 %

B. 6 %

C. 4 %

D. 10 % ✓

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Q29 Mathematics

If $\frac{a}{b} = 0.25$, then the value of $\left(\frac{2a-b}{2a+b}\right) + \frac{2}{9}$ is:

A. $-\frac{2}{9}$

B. $\frac{5}{9}$

C. $-\frac{1}{9}$ ✓

D. $\frac{4}{9}$

Q30 Mathematics

Sundari, Kasu and Jyothi took two tests each. The ratio of marks obtained to total marks for each of their two tests is given below

Sundari - $\frac{24}{60}$ and $\frac{32}{40}$,

Kasu - $\frac{35}{70}$ and $\frac{54}{60}$,

Jyothi - $\frac{27}{90}$ and $\frac{45}{50}$

Who among them registered the maximum progress?

A. Only Sundari

B. Both Sundari and Kasu

C. Only Kasu

D. Only Jyothi ✓

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Mathematics

30 Questions • Answer Key

Q1 Mathematics

If three numbers are in the ratio of 4 : 3 : 8 and the smallest of these numbers is 42, find the largest of these numbers.

A. 120
B. 104
C. 112 ✓
D. 96

Q2 Mathematics

19 × 19 = 361. What will be the value of 190 × 0.0019?

A. 0.361 ✓
B. 0.0361
C. 0.00361
D. 3.61

Q3 Mathematics

A sum of money, when invested at 10% compound interest per annum, amounts to ₹1,815 after 2 years. What is the original sum that was invested in the beginning?

A. ₹1,500.00 ✓
B. ₹1,550.00
C. ₹1,475.00
D. ₹1512.50

Q4 Mathematics

What is the product of the LCM and the HCF of 15 and 25?

A. 150
B. 225
C. 375 ✓
D. 75

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Q5 Mathematics

If $x - y = 5$ and $xy = 15$, then what is the value of $x^3 - y^3$?

A. 125

B. 250

C. – 100

D. 350 ✓

Q6 Mathematics

After offering successive discounts of 15% and 12%, there was still a 10% profit on the sale of the item. What is the ratio of the marked price to the cost price of the item?

A. 25 : 17 ✓

B. 2 : 1

C. 90 : 73

D. 110 : 73

Q7 Mathematics

What is the HCF of $\frac{2}{3}, \frac{3}{4}$ and $\frac{5}{6}$?

A. $\frac{5}{12}$

B. $\frac{1}{72}$

C. $\frac{5}{24}$

D. $\frac{1}{12}$ ✓

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Q8 Mathematics

If θ is an acute angle and $\tan\theta = \frac{48}{55}$, then what is the value of $\operatorname{cosec}\theta$?

A. $\frac{73}{48}$ ✓

B. $\frac{73}{55}$

C. $\frac{48}{73}$

D. $\frac{55}{48}$

Q9 Mathematics

Sonal was given some money to take care of her travel expenses during a 16-day sales drive. However, she had to increase her stay by another 8 days, and as a result her average daily travel allowance went down by ₹80. How much was sanctioned to her in the beginning?

A. ₹3,820

B. ₹3,750

C. ₹3,760

D. ₹3,840 ✓

Q10 Mathematics

While selling an item, the difference between selling it at 11% profit and 13% loss is ₹204. What is the cost price of the item?

A. ₹765

B. ₹850 ✓

C. ₹748

D. ₹816

Q11 Mathematics

A sum of money invested at x% simple interest per annum amounts to ₹2,368 in 6 years and to ₹3,008 in 11 years. Find the value of x.

A. 7.5

B. 6

C. 5

D. 8 ✓

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Q12 Mathematics

If the perimeter of a square is 20 cm, then what is its area?

A. $25\ cm^2$ ✓

B. $20\ cm^2$

C. $400\ cm^2$

D. $100\ cm^2$

Q13 Mathematics

A alone can do a work in 14 days, whereas B alone can do it in 21 days. B works alone on day 1 while A works alone on day 2, and the process continues, till the work is completed. How many days in all does it take for the work to be completed?

A. 16

B. 20

C. 17 ✓

D. 8

Q14 Mathematics

36% of x = 81% of y. Find x : y.

A. 9 : 25

B. 4 : 9

C. 81 : 100

D. 9 : 4 ✓

Q15 Mathematics

What is the square root of 66049?

A. 267

B. 257 ✓

C. 263

D. 253

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Q16 Mathematics

If $\theta = 30^0$, then what will be the value of $\sin\theta\cos\theta$?

A. $\frac{\sqrt{3}}{2}$

B. $\frac{3}{8}$

C. $\frac{\sqrt{3}}{6}$

D. $\frac{\sqrt{3}}{4}$ ✓

Q17 Mathematics

What is the LCM of $\frac{3}{8}$, $\frac{9}{20}$ and $\frac{15}{16}$?

A. $\frac{3}{4}$

B. $\frac{45}{4}$ ✓

C. $\frac{16}{9}$

D. $\frac{9}{16}$

Q18 Mathematics

What is the value of $1 - \left(\frac{5}{6}\right)^2$?

A. $\frac{1}{6}$

B. $\frac{11}{36}$ ✓

C. $\frac{1}{36}$

D. $\frac{4}{9}$

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Q19 Mathematics

Simplify the given expression.

$125 \div 5 \div 5 \times 5$

A. 1

B. 625

C. 5

D. 25 ✓

Q20 Mathematics

The LCM of 6, 9 and x is 72. Which of the given options can be a possible value of x?

A. 12

B. 18

C. 36

D. 24 ✓

Q21 Mathematics

Rohan had to travel from A to B. He covers 75% of the distance at a speed of 60 km/h and the remaining distance at a speed of 40 km/h. What was his average speed for the entire journey?

A. 50 km/h

B. $54\frac{2}{3}$ km/h

C. $53\frac{1}{3}$ km/h ✓

D. 55 km/h

Q22 Mathematics

The hypotenuse of a right isosceles triangle is $18\sqrt{3}$ cm. Find the area of the triangle.

A. 486 cm^2

B. 268 cm^2

C. 324 cm^2

D. 243 cm^2 ✓

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Q23 Mathematics

If 28% of a number is 20, then what is the value of 49% of the same number?

A. 35 ✓

B. 45.5

C. 42

D. 38.5

Q24 Mathematics

If the average of 6 positive integers is 45 and the difference between the largest and the smallest of these 6 numbers is 18, then what is the minimum value possible for the smallest of these 6 integers?

A. 30 ✓

B. 31

C. 27

D. 29

Q25 Mathematics

If $x^3 - 9x^2 + 26x - 24 = 0$, then which of the values of x given in the options will provide an INCORRECT solution to the given equation?

A. 1 ✓

B. 3

C. 2

D. 4

Q26 Mathematics

What is the sum of the two smallest natural numbers, each of the two having exactly seven factors?

A. 843

B. 625

C. 736

D. 793 ✓

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Q27 Mathematics

Find the digit in the unit's place of $124^n + 124^{(n+1)}$, where n is any whole number.

A. 4

B. 0 ✓

C. 2

D. 8

Q28 Mathematics

A alone can do a task in 39 days, whereas B alone can do it in 52 days. The duo start working together, but A leaves 3 days before the task gets over. For how many days did the two work together?

A. $20\frac{1}{3}$

B. 21 ✓

C. $19\frac{2}{7}$

D. 20

Q29 Mathematics

If $\sin\theta - \cos\theta = \frac{\sqrt{3}}{2}$, then find the positive value of $sin\,\theta + \cos\theta$.

A. $\frac{\sqrt{7}}{2}$

B. $\frac{\sqrt{5}}{2}$ ✓

C. $\frac{7\sqrt{3}}{2}$

D. $\frac{3\sqrt{3}}{4}$

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Q30 Mathematics

Three positive integers, a, b, and c, are such that their average is 28 and $a \leq b \leq c$. If the median is $(a + 16)$, then what is the least possible value of c?

A. 32

B. 34 ✓

C. 35

D. 33

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The present worth of ₹338 due in 2 years at 4% per annum compound interest is: _____

A. ₹350.50

B. ₹365.58

C. ₹312.50 ✓

D. ₹294.00

Q2 Mathematics

Express the decimal number $3.12\overline{7}$ in fraction form.

A. $\frac{281}{900}$

B. $\frac{365}{180}$

C. $\frac{563}{180}$ ✓

D. $\frac{180}{563}$

Q3 Mathematics

If 40% of a number is 800 then the number is:

A. 400

B. 2000 ✓

C. 200

D. 800

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Q4 Mathematics

Two numbers are in the ratio 9 : 5. If 9 is added to the greater number and 5 is subtracted from the smaller number, the greater number becomes thrice the smaller one. Find the numbers.

A. 72, 40

B. 36, 20 ✓

C. 18, 10

D. 36, 10

Q5 Mathematics

What is the HCF of n and n + 1 where n is a natural number?

A. 3

B. 0

C. 2

D. 1 ✓

Q6 Mathematics

What is the mean of the data 2, 5, 4, 1, 8?

A. 5

B. 20

C. 3

D. 4 ✓

Q7 Mathematics

If $x = \frac{1}{\sqrt{2}+1}$, then what will be the value of $x + 1$?

A. 2

B. $\sqrt{2}$ ✓

C. $\sqrt{2} - 1$

D. $\sqrt{2} + 1$

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Q8 Mathematics

Find the value of x if $\frac{52}{x} = \sqrt{\frac{169}{289}}$

A. 68 ✓

B. 58

C. 52

D. 62

Q9 Mathematics

If the area of a triangle with base 12 cm is equal to the area of a square with side 12 cm, then the altitude of the triangle will be:

A. 36 cm

B. 24 cm ✓

C. 18 cm

D. 12 cm

Q10 Mathematics

In a class of 40 students the number of girls is three fifths of the number of boys. Then find the number of boys in the class.

A. 18

B. 25 ✓

C. 14

D. 15

Q11 Mathematics

A school collected ₹2,601 as fees from its students. If the fees paid by each student and the number of students in the school were equal, then how many students were there in the school?

A. 61

B. 39

C. 49

D. 51 ✓

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Q12 Mathematics

The perimeter of the floor of a room is 18 m. What is the area of the walls of the room, if the height of the room is 3 m?

A. $108\ m^2$

B. $21\ m^2$

C. $54\ m^2$ ✓

D. $42\ m^2$

Q13 Mathematics

If the cost price of six items is equal to the selling price of seven items, then what will be the percentage profit or loss?

A. 14.28% profit

B. 14.28% loss ✓

C. 9.09% loss

D. 7.14% loss

Q14 Mathematics

A dealer marks his goods 10% above the cost price and allows 10% discount. What is his percentage gain or loss?

A. 1% gain

B. 10% gain

C. 10% loss

D. 1% loss ✓

Q15 Mathematics

Find the least number, which is exactly divisible by 12, 15, and 18.

A. 160

B. 240

C. 180 ✓

D. 120

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Q16 Mathematics

Which of the following is the smallest fraction?

$\frac{7}{6}, \frac{7}{9}, \frac{4}{5}, \frac{5}{7}$

A. $\frac{5}{7}$ ✓

B. $\frac{7}{9}$

C. $\frac{7}{6}$

D. $\frac{4}{5}$

Q17 Mathematics

Pipe 1 can empty a tank in 6 h while pipe 2 can do so in 18 h. If both are working together, in how much time will they empty the full tank?

A. 5 h

B. 4.5 h ✓

C. 10 h

D. 9 h

Q18 Mathematics

What will be the simple interest earned on an amount of ₹16,800 in 9 months at the rate of $6\frac{1}{4}\%$ per annum?

A. ₹158

B. ₹812.50

C. ₹787.50 ✓

D. ₹860

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Q19 Mathematics

The position of the point (1, 2) with respect to the circle

$x^2 + y^2 - 3x - 4y + 1 = 0$:

A. lies outside the circle

B. lies on the circle

C. cannot be decided

D. lies inside the circle ✓

Q20 Mathematics

Find the value of $7500 + (1250 \div 50)$.

A. 6575

B. 175

C. 300

D. 7525 ✓

Q21 Mathematics

What number must be subtracted from both the numerator and denominator of the fraction $\frac{15}{19}$ so as to make it $\frac{3}{4}$?

A. 5

B. 9

C. 6

D. 3 ✓

Q22 Mathematics

If $y = 5$, then what will be the value of $10y\sqrt{y^3 - y^2}$?

A. 100

B. 500 ✓

C. $50\sqrt{2}$

D. $200\sqrt{5}$

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Q23 Mathematics

If 24 men can complete a piece of work in 15 days working 8 h per day, then how many men will be required to complete the same work in 10 days working 6 h per day?

A. 32

B. 60

C. 48 ✓

D. 30

Q24 Mathematics

Solve the following.

$$1+\frac{1+\cos\theta}{\sin\theta}-\frac{\sin^2\theta}{1+\cos\theta}-\frac{\sin\theta}{1-\cos\theta}=?$$

A. $\sin\theta$

B. $\cos\theta$ ✓

C. $-\cos\theta$

D. $-\sin\theta$

Q25 Mathematics

The image of the point (7, 8) when reflected along the x-axis is:

A. (8, 7)

B. (7, –8) ✓

C. (–7, –8)

D. (–7, 8)

Q26 Mathematics

If the first term of a geometric progression is 2 and the common ratio is 3, then what will be the fifth term of the geometric progression?

A. 162 ✓

B. 81

C. 324

D. 243

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Q27 Mathematics

A man walking at the speed of 5km/h crosses a bridge in 15 min. The length of the bridge in metres is:

A. 1000

B. 600

C. 750

D. 1250 ✓

Q28 Mathematics

The equation whose roots are –2 and 3 is:

A. $x^2 - 5x + 6 = 0$

B. $x^2 - x + 6 = 0$

C. $x^2 - x - 6 = 0$ ✓

D. $x^2 + 3x - 6 = 0$

Q29 Mathematics

Three straight lines $x + y - 3 = 0$, $x + y + 2 = 0$ and $3x + 3y - 7 = 0$ are:

A. perpendicular

B. parallel ✓

C. intersecting each other

D. concurrent

Q30 Mathematics

Find the median and the mode of the following data:

2, 3, 5, 7, 2, 3, 3, 5, 7 and 9.

A. 3, 4

B. 4, 3 ✓

C. 3, 3

D. 4, 4

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If $x^2 - 3x + 1 = 0$, then the value of $x^2 + x + \left(\frac{1}{x}\right) + \left(\frac{1}{x^2}\right)$ is:

A. 2

B. 10 ✓

C. 6

D. 8

Q2 Mathematics

16 men can finish a piece of work in 8 days while 20 women and 4 men can do it in 16 days. In how many days can 10 women complete the entire work by themselves?

A. 40 days

B. 60 days

C. 64 days ✓

D. 48 days

Q3 Mathematics

If the side of an equilateral triangle is $2\sqrt{2}$ cm, then the length of the perpendicular drawn from vertex to the side is:

A. $\sqrt{5}$ cm

B. $\sqrt{6}$ cm ✓

C. $\sqrt{7}$ cm

D. 2 cm

Q4 Mathematics

The value of $30 - (3 \times 4 + 15 \div 3) + 8 \times 3 \div 6$ is:

A. 15

B. 21

C. 19

D. 17 ✓

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Q5 Mathematics

At what simple interest rate per annum will a sum of money become four times of itself in 20 years?

A. 5%

B. 20%

C. 10%

D. 15% ✓

Q6 Mathematics

Vinod travelled from his home to his office at a speed of 20 km/h and walked back at a speed of 5 km/h. The whole journey took 4 h. The distance between his office and his home is:

A. 10 km

B. 6 km

C. 16 km ✓

D. 8 km

Q7 Mathematics

Which of the following statements is FALSE?

A. In any triangle, the sum of any two sides of the triangle is greater than the length of the third side.

B. The greatest side of any triangle makes acute angles with each of the other sides.

C. In any triangle, the sum of any two angles of the triangle is greater than the measure of the third angle. ✓

D. In any triangle, the difference between the lengths of any two sides of a triangle is smaller than the length of the third side.

Q8 Mathematics

A box contains 6 white balls and 7 black balls. Two balls are drawn at random. What is the probability that both of them are of different colours?

A. $\frac{4}{13}$

B. $\frac{2}{13}$

C. $\frac{6}{13}$

D. $\frac{7}{13}$ ✓

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Q9 Mathematics

Which of the following statements is true with respect to a triangle?

A. The concurrent point of altitudes is called centroid.

B. The sum of medians is less than perimeter. ✓

C. The concurrent point of internal angle bisectors is called orthocenter.

D. Any two sides together are less than twice the median of remaining side.

Q10 Mathematics

A and B are two alloys formed by the combination of gold and copper in the ratio 5 : 3 and 5 : 11 respectively. Equal quantities of these two alloys are melted and mixed to form a new alloy C. Now, alloy C contains gold and copper in the ratio:

A. 33 : 25

B. 15 : 17 ✓

C. 17 : 15

D. 25 : 23

Q11 Mathematics

A sum of money lent out at simple interest amounts to ₹600 after two years and to ₹900 after a further period of 5 years. The interest rate is:

A. 12%

B. 13%

C. 12.5% ✓

D. 10%

Q12 Mathematics

Find the value of (?)

$6^{1.2} \times 36^{?} \times 30^{2.4} \times 25^{1.3} = 30^{5}$

A. 2.6

B. 0.7 ✓

C. 1.4

D. 0.1

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Q13 Mathematics

Two letters are selected from the word 'TENDULKAR'. The probability that both are vowels is:

A. $\frac{2}{9}$

B. $\frac{1}{12}$ ✓

C. $\frac{5}{9}$

D. $\frac{5}{12}$

Q14 Mathematics

Which of the following statements is true?

A. HCF of fractions = LCM of numerators/HCF of denominators

B. LCM of fractions = HCF of numerators/LCM of denominators

C. HCF of fractions = HCF of numerators/LCM of denominators ✓

D. The numbers are said to be co-prime if their LCM is 1

Q15 Mathematics

The digit in the unit's place of the product $61 \times 62 \times 63 \ldots . \times 69$ is:

A. 0 ✓

B. 2

C. 4

D. 3

Q16 Mathematics

If Raju's earning is 40% less than Venkat's earning, by how much percentage is Venkat's earning more than Raju's earning?

A. 200%

B. 100%

C. $\left(\frac{200}{3}\right)\%$ ✓

D. $\left(\frac{400}{3}\right)\%$

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Q17 Mathematics

The sum of the even numbers between 1 and 111 is:

A. 3082

B. 3076

C. 3080 ✓

D. 3078

Q18 Mathematics

Solve the following.

$3.\overline{36} - 2.\overline{05} + 1.\overline{33} = ?$

A. $2.\overline{63}$

B. $2.\overline{64}$ ✓

C. $2.\overline{60}$

D. $2.\overline{61}$

Q19 Mathematics

If $a : b = 2 : 3$, then find the value of $(3a + 7b) : (6a - 3b)$.

A. $9 : 1$ ✓

B. $6 : 1$

C. $3 : 1$

D. $2 : 1$

Q20 Mathematics

If the perimeter of a right angled triangle is 56 cm and the area of the triangle is 84 cm^2 , then the length of the hypotenuse is:

A. 25 cm ✓

B. 24 cm

C. 7 cm

D. 50 cm

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Q21 Mathematics

The distance between two stations A and B is 420 km. A train starts from A at 3 p.m. and travels towards B at a speed of 60 km/h. Another train starts from B at 4 p.m. and travels towards A at a speed of 30 km/h. At what time do they meet?

A. 10 p.m.

B. 10:30 p.m.

C. 9 p.m.

D. 8 p.m. ✓

Q22 Mathematics

If $a = 0.1 + \sqrt{0.9}$ and $b = 0.1 - \sqrt{0.9}$ then what will be the value of $a^2 + b^2$?

A. 2.82

B. 1.82 ✓

C. 1.9

D. 2

Q23 Mathematics

If $x^{11} = y^0$ and $x = 2y$, then y is equal to:

A. 1

B. -1

C. -2

D. $\frac{1}{2}$ ✓

Q24 Mathematics

If the difference between the exterior and the interior angles of a regular polygon is 60°, with an interior angle being greater than the corresponding exterior angle, then find the number of sides of the polygon.

A. 6 ✓

B. 5

C. 8

D. 7

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Q25 Mathematics

The sum of two numbers is 98 and their HCF is 14. How many such pairs can be formed?

A. 1

B. 4

C. 3 ✓

D. 2

Q26 Mathematics

If $\cos A + \sec A = \frac{5}{2}$ and A is an acute angle, then $\sin A +$ cosecA is equal to:

A. $\frac{7}{\sqrt{3}}$

B. $\frac{5}{2\sqrt{3}}$

C. $\frac{7}{2\sqrt{3}}$ ✓

D. $2\sqrt{\frac{3}{5}}$

Q27 Mathematics

If 60% of x added to 60, then the result is x + 20. The value of number x is:

A. 100 ✓

B. 90

C. 80

D. 70

Q28 Mathematics

If 60% of (a − b) is the same as 40% of (a + b), then what percentage of a is b?

A. 20 ✓

B. 26

C. 22

D. 24

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Q29 Mathematics

If $x = \frac{\sqrt{5}+1}{\sqrt{5}-1}$ and $y = \frac{1}{x}$, then what will be the value of $x^2 + y^2$?

A. 4

B. 6

C. 7 ✓

D. 5

Q30 Mathematics

If $a \times b = a + b + \left(\sqrt{\frac{a}{b}}\right) + \sqrt{(ab)}$, then what will be the value of 16×4?

A. 32

B. 28

C. 30 ✓

D. 26

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

What is the sub-duplicate ratio of 225 : 144?

A. 15 : 12 ✓

B. 5 : 12

C. 12 : 5

D. 12 : 15

Q2 Mathematics

Which of the following is a simplified form of the expression :

$\sin A \cos A(\tan A - \cot A)$, where $(0^\circ \leq A \leq 90^\circ)$?

A. $2\cos^2 A - 1$

B. $2\sin^2 A - 1$ ✓

C. $1 - \cos^2 A$

D. 1

Q3 Mathematics

A train overtakes two boys who are walking in the same direction as the train, at the rate of 5 km/hr and 7 km/hr and passes them completely in 6 seconds and 9 seconds respectively. Find the length of the train.

A. 20 m

B. 10 m ✓

C. 5 m

D. 30 m

Q4 Mathematics

$4^7 - 4$ is NOT a multiple of:

A. 4

B. 8 ✓

C. 7

D. 2

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Q5 Mathematics

The median of a set of 7 distinct observations is 21.5. If each of the largest 3 observations of the set is increased by 4, then the median of the new set -

A. will decrease by 4

B. will be four times the original median

C. will remain the same as that of the original set ✓

D. will increase by 4

Q6 Mathematics

A can do $\frac{1}{5}$ th of some work in 12 days, B can do 20% of the same work in 10 days, C can do $\frac{1}{6}$ th of the work in 8 days and D can do $\frac{1}{5}$ th of the work in 12 days. Who will complete the work first if all four started to work at the same time?

A. D

B. B

C. A

D. C ✓

Q7 Mathematics

Find the value of $\frac{(74+47)^2+(74-47)^2}{74^2+47^2}$

A. 2 ✓

B. 47

C. 1

D. 74

Q8 Mathematics

The ratio of bases of two triangles is 4 : 5 and that of their areas is 8 : 15. What is the ratio of their corresponding altitudes?

A. 3 : 2

B. 2 : 3 ✓

C. 1 : 2

D. 1 : 3

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Q9 Mathematics

What is the sum of the first 25 odd numbers?

A. 144

B. 250

C. 625 ✓

D. 150

Q10 Mathematics

When 38 is added to 30% of a number. The result is 50. What is the number?

A. 40 ✓

B. 60

C. 80

D. 20

Q11 Mathematics

Some fruits were divided amongst A, B, C and D in the ratio 3 : 4 : 5 : 7. If A got 192 fruits, then how many fruits did B and C together get?

A. 756

B. 576 ✓

C. 675

D. 567

Q12 Mathematics

What number must be subtracted from both the denominator and numerator of the fraction $\frac{42}{45}$ so that it becomes $\frac{5}{6}$?

A. 12

B. 25

C. 13

D. 27 ✓

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Q13 Mathematics

Find the value of $4 \times \left\{\frac{2.4}{0.9} \times \frac{0.27}{0.08} \times \frac{0.50}{0.05}\right\}$.

A. 603

B. 630

C. 360 ✓

D. 306

Q14 Mathematics

If the area of an incircle of an equilateral triangle is 462 cm^2, find the perimeter of the triangle.

A. 186 cm

B. $42\sqrt{6}$ cm

C. $21\sqrt{3}$ cm

D. 126 cm ✓

Q15 Mathematics

What is the area of the region swept by the minute hand 6 cm long, of a wall cock, in an interval of 5 minutes?

A. 9.8 cm^2

B. 9.63 cm^2

C. 9.6 cm^2

D. 9.43 cm^2 ✓

Q16 Mathematics

If each interior angle of a regular polygon is 120°, then find the number of diagonals of the polygon.

A. 9 ✓

B. 4

C. 6

D. 8

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Q17 Mathematics

If 15% of A is equal to 18% of B, then what percentage of B is equal to 20% of A?

A. 25%

B. 42%

C. 24% ✓

D. 20%

Q18 Mathematics

The perimeters of two similar triangles ΔXYZ and ΔLMN are 48 cm and 32 cm respectively. If LM = 12 cm, then what is the length of XY?

A. 18 cm ✓

B. 12 cm

C. 16 cm

D. 14 cm

Q19 Mathematics

If $\frac{\sec\theta+\tan\theta}{\sec\theta-\tan\theta} = \frac{5}{3}$, then the value of $\sin\theta$ is:

A. $\frac{1}{3}$

B. $\frac{3}{4}$

C. $\frac{2}{3}$

D. $\frac{1}{4}$ ✓

Q20 Mathematics

Two numbers are such that the sum of $\frac{1}{3}$ of the first number and $\frac{1}{2}$ of the second number is 8. The sum of $\frac{1}{5}$ of the first number and $\frac{1}{6}$ of the second number is 4. What is the largest of the two numbers?

A. 11

B. 6

C. 21

D. 15 ✓

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Q21 Mathematics

Which of the following fractions is the smallest?

A. $\frac{7}{8}$

B. $\frac{7}{10}$ ✓

C. $\frac{5}{7}$

D. $\frac{3}{4}$

Q22 Mathematics

A man buys a machine for ₹2,400 and sells it at a loss of 10%. What is the selling price of the machine?

A. ₹2,610

B. ₹2,160 ✓

C. ₹2,166

D. ₹2,016

Q23 Mathematics

The value of $0.\overline{56} + 0.\overline{43} + 0.\overline{89}$ is:

A. $1.\overline{98}$

B. $1.\overline{87}$

C. $1.\overline{89}$ ✓

D. $1.\overline{88}$

Q24 Mathematics

If $\sqrt{15 \times 27 \times x} = 180$, then x is equal to:

A. 70

B. 50

C. 80 ✓

D. 60

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Q25 Mathematics

A and B can do a work in 4 hours. B and C can complete the same work in 6 hours, while A and C take 8 hours to complete the work. C can complete the work independently in:

A. 12 hours

B. 48 hours ✓

C. 36 hours

D. 24 hours

Q26 Mathematics

If $\sqrt{x} + 10 = \sqrt{529}$, then the value of x is:

A. 166

B. 169 ✓

C. 168

D. 167

Q27 Mathematics

The floor of a room is 3 m long and 1m 50 cm broad. Find the number of the largest possible square slabs which can be used to pave the floor.

A. 4

B. 2 ✓

C. 6

D. 5

Q28 Mathematics

If $\frac{1}{3}$ of A $= \frac{3}{4}$ of B $= \frac{1}{6}$ of C, then what is A : B : C?

A. 4 : 9 : 18

B. 9 : 18 : 4

C. 9 : 4 : 18 ✓

D. 18 : 9 : 4

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Q29 Mathematics

The ratio of two numbers is 4 : 5 and their HCF is 3. What will be their LCM?

A. 30

B. 40

C. 60 ✓

D. 20

Q30 Mathematics

Mr Ram invests an amount of ₹12,200 at the rate of 2% per annum for 4 years to obtain a simple interest. Later he invests the principal amount as well as the amount obtained as simple interest for another 4 years at the same rate of interest. What amount of simple interest will he get at the end of the last 4 years?

A. ₹1,054.00

B. ₹1,056.07

C. ₹1,054.08 ✓

D. ₹1,055.08

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If $a : b = 3 : 2$, then $(7a + 9b) : (5a + 7b) = ?$

A. $19 : 39$

B. $29 : 39$

C. $29 : 19$

D. $39 : 29$ ✓

Q2 Mathematics

Find the value of $36 - 2(20 + 12 \div 4 \times 3 - 2 \times 2) + 10$.

A. 3

B. -3

C. -4 ✓

D. 4

Q3 Mathematics

10 is the mean of a set of 7 observations and 5 is the mean of another set of 3 observations. The mean of the combined set is:

A. 15

B. 8.5 ✓

C. 10

D. 7.5

Q4 Mathematics

If $\sin 2A = \cos 75°$, then the smallest positive value of A is:

A. $75°$

B. $7.5°$ ✓

C. $15°$

D. $30°$

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Q5 Mathematics

The value of $\frac{0.3^4 - 0.2^4}{0.3^2 + 0.2^2}$ is:

A. 0.05 ✓

B. 0.5

C. 0.15

D. 0.51

Q6 Mathematics

If $\sqrt{0.03 \times 0.3 \times p} = 0.3 \times 0.03 \times \sqrt{q}$, then $\frac{p}{q}$ is:

A. 0.9

B. 0.0009

C. 0.09

D. 0.009 ✓

Q7 Mathematics

A এবং B একইসঙ্গে X বিন্দু থেকে Y বিন্দুর দিকে গাড়ি চালাতে শুরু করে। X থেকে Y বিন্দুর দূরত্ব 60 km. A-এর গতিবেগ B-এর গতিবেগের থেকে 4 km/h কম। Y বিন্দুতে পৌঁছে আবার ফিরে আসার পথে B, A-এর সঙ্গে Y বিন্দু থেকে 12 km দূরে মিলিত হয়। A-এর গতিবেগ নির্ণয় করুন।

A. 20 km/h

B. 8 km/h ✓

C. 12 km/h

D. 16 km/h

Q8 Mathematics

A alone can finish a job in 12 days, while B alone can finish it in 15 days. With the help of C, they can finish the same job in 5 days. If they are paid ₹2,880 for the whole job, what will be the share of C?

A. ₹700

B. ₹760

C. ₹720 ✓

D. ₹740

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Q9 Mathematics

প্রদত্ত বিবৃতিগুলি যত্নসহকারে পড়ে বিবৃতির সাপেক্ষে সঠিক বিকল্পটি নির্বাচন করুন।

বিবৃতিঃ

1. যে কোনও ত্রিভুজে, তিনটি মধ্যমার মিলনবিন্দু হল ভরকেন্দ্র।
2. যে কোনও ত্রিভুজে, তিনটি লম্ব (আল্টিটিউড)-এর মিলনবিন্দু হল লম্বকেন্দ্র।
3. যে কোনও ত্রিভুজে, তিনটি অন্তঃকোণ-দ্বিখন্ডকের মিলনবিন্দু হল অন্তঃকেন্দ্র।

A. শুধুমাত্র 3 বিবৃতিটি সঠিক।

B. সকল (1, 2, 3) বিবৃতিই সঠিক। ✓

C. শুধুমাত্র 2 বিবৃতিটি সঠিক।

D. শুধুমাত্র 1 বিবৃতিটি সঠিক।

Q10 Mathematics

If $\cos 42^\circ = p$, then $\tan 48^\circ = ?$

A. $\frac{p}{\sqrt{1-p^2}}$ ✓

B. $\frac{\sqrt{1-p^2}}{p}$

C. $\frac{p+1}{\sqrt{1-p^2}}$

D. $\frac{p^2}{\sqrt{1-p^2}}$

Q11 Mathematics

If $A + B = 45^\circ$, then $(1 + \tan A)(1 + \tan B) = ?$

A. 1

B. 2 ✓

C. 3

D. 4

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Q12 Mathematics

Find the HCF of $\frac{3}{2}$, $\frac{9}{8}$, $\frac{81}{16}$, and $\frac{27}{10}$.

A. $\frac{3}{80}$ ✓

B. $\frac{80}{3}$

C. $\frac{2}{81}$

D. $\frac{1}{40}$

Q13 Mathematics

If $a+b+c=3$, $a^2+b^2+c^2=6$

and $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=1$, where a, b and c $\neq 0$, then abc = ?

A. $\frac{5}{2}$

B. $\frac{3}{2}$ ✓

C. 1

D. $\frac{1}{2}$

Q14 Mathematics

If $x=\frac{\sqrt{3}}{2}$, then find the value of $\sqrt{1+x}+\sqrt{1-x}$.

A. $2+\sqrt{3}$

B. $2-\sqrt{3}$

C. $\frac{\sqrt{3}}{2}$

D. $\sqrt{3}$ ✓

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Q15 Mathematics

মহতী মুদ্রিত মূল্যের নয়-দশমাংশ মূল্য দিয়ে একটি কুকার ক্রয় করে এবং মুদ্রিত মূল্যের 8% বেশি দামে সেটি বিক্রয় করেন। তাহলে তার শতকরা লাভের পরিমাণ নির্ণয় করুন।

A. 20% ✓

B. 14%

C. 10%

D. 16%

Q16 Mathematics

Read the given information and statements carefully and decide which option is True with respect to the information.

If a sum of money is lent at simple interest, then the:

Statements:

1. Money gets doubled in 6 years if the rate of interest is 16%.
2. Money gets doubled in 5 years if the rate of interest is 18%.

A. Both statements 1 and 2 are correct

B. Only statement 2 is correct

C. Only statement 1 is correct

D. Both statements 1 and 2 are incorrect ✓

Q17 Mathematics

If a and b are of the same sign and $(3a^2 - 8b^2) : (a^2 + 4b^2) = 2 : 1$, then $a : b = ?$

A. $4 : 1$ ✓

B. $4 : 5$

C. $1 : 4$

D. $5 : 4$

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Q18 Mathematics

The capital required to earn a monthly interest of ₹1,500 at 12% per annum simple interest is:

A. ₹25 lakhs

B. ₹15 lakhs

C. ₹1 lakh

D. ₹1.5 lakhs ✓

Q19 Mathematics

Read the given information and statements carefully and decide which option is correct with respect to the statements.

If a circle has a radius (r), area (A) and circumference (C), then:

Statements:

1. $A : C^2 = 1 : 4\pi$
2. $A : C = r : 2$

A. Both statements 1 and 2 are false.

B. Both statements 1 and 2 are true. ✓

C. Only statement 2 is true.

D. Only statement 1 is true.

Q20 Mathematics

If $x^3 + y^3 = 36$ and $x + y = 6$, then $\frac{1}{x} + \frac{1}{y} = ?$

A. $\frac{5}{6}$

B. 6

C. $\frac{3}{5}$ ✓

D. $\frac{1}{3}$

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Q21 Mathematics

The HCF of two numbers is 30 and the LCM is 2310. If one of the numbers is 210, then the other number is:

A. 220

B. 550

C. 440

D. 330 ✓

Q22 Mathematics

The LCM of 4, 6 and x CANNOT be:

A. 60

B. 18 ✓

C. 24

D. 36

Q23 Mathematics

In a triangle ABC, $\angle B = 90°, \angle C = 45°$ and D is the midpoint of AC. If $AC = 4\sqrt{2}$ units, then BD is:

A. $\sqrt{2}$ units

B. $4\sqrt{2}$ units

C. $3\sqrt{2}$ units

D. $2\sqrt{2}$ units ✓

Q24 Mathematics

₹200 was invested for 2 years on 10% compound interest per year. If the rate of interest had been 20%, then how much more would the investor have received as interest for the same period?

A. ₹46 ✓

B. ₹48

C. ₹44

D. ₹40

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Q25 Mathematics

একটি সমবাহু ত্রিভুজের প্রতিটি বাহুর দৈর্ঘ্য হল $3\sqrt{3}$ cm ; ত্রিভুজটির উচ্চতা নির্ণয় করুন।

A. 5.5 cm

B. 5 cm

C. 4 cm

D. 4.5 cm ✓

Q26 Mathematics

What is the sum of the squares of all two-digit numbers each of which is completely divisible by 4?

A. 78324

B. 78220

C. 78300

D. 78320 ✓

Q27 Mathematics

The reciprocal of the sum of the reciprocals of $\frac{5}{7}$ and $\frac{9}{5}$ is:

A. $\frac{88}{35}$

B. $\frac{35}{88}$

C. $\frac{88}{45}$

D. $\frac{45}{88}$ ✓

Q28 Mathematics

Raju is thrice as good as a workman as Vinod and together they can finish a task in 21 days. In how many days can Vinod alone complete the work?

A. 84 ✓

B. 76

C. 78

D. 28

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Q29 Mathematics

A boy read three-eighth of a book on one day and four-fifth of the remainder of the book on the next day. If 45 pages still remain unread, how many pages does the book contain?

A. 330

B. 360 ✓

C. 380

D. 340

Q30 Mathematics

If the compound interest on a certain sum of money for 3 years at 5% per annum is ₹3,783, then what would be the simple interest on the same sum of money for the same period and at the same rate?

A. ₹3,600 ✓

B. ₹3,680

C. ₹3,440

D. ₹3,400

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the value of x.

$6(8x + 25) - 70 = 5(8x + 25)$

A. $x = 5\frac{5}{7}$

B. $x = 5\frac{5}{8}$ ✓

C. $x = \frac{5}{8}$

D. $x = 5\frac{15}{8}$

Q2 Mathematics

What would be the highest value of X in the given equation:

$1X9 + 1Y7 + 2Z8 = 424$

A. 0 ✓

B. 7

C. 2

D. 1

Q3 Mathematics

If $0.17 \div p^2 = 17$, then the value of p is:

A. 0.001

B. 1

C. 0.1 ✓

D. 0.01

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Q4 Mathematics

If $\cos x - 3\sin x = \sqrt{3}\ \sin x$, then the value of $\tan x$ is:

A. $\frac{3-\sqrt{3}}{6}$ ✓

B. $3 - \sqrt{3}$

C. $3 + \sqrt{3}$

D. $\sqrt{3}$

Q5 Mathematics

Which one of the following numbers is NOT a prime number?

A. 231 ✓

B. 313

C. 211

D. 241

Q6 Mathematics

Six bells commence tolling together and toll at the intervals of 2, 4, 6, 8, 10 and 12 seconds respectively. In the first 10 minutes, how many times would they have tolled together?

A. 5 times

B. 4 times

C. 2 times

D. 6 times ✓

Q7 Mathematics

What is the exterior angle of a regular 15-sided polygon?

A. 204°

B. 24° ✓

C. 124°

D. 20°

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Q8 Mathematics

X is 6 times as large as Y. By what percentage is Y lesser than X?

A. $83\frac{1}{3}\%$ ✓

B. $8\frac{1}{3}\%$

C. $83\frac{3}{3}\%$

D. $83\frac{2}{3}\%$

Q9 Mathematics

A circle, made of wire, of diameter 49 cm is formed into a rectangle whose sides are in the ratio 7 : 4. Find the area of the rectangle. [Take $\pi = \frac{22}{7}$]

A. 1372 sq cm ✓

B. 1402 sq cm

C. 1350 sq cm

D. 1312 sq cm

Q10 Mathematics

What is the value of the following expression:

$(1+x)(1+x^2)(1+x^4)(1+x^8)(1-x)$

A. $(1-x^{16})$ ✓

B. $(1+x^{16})$

C. $(1-x)^8$

D. $(1-x)^4$

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Q11 Mathematics

The difference between two numbers is 35% of the larger number. If the smaller number is 195, then the larger number is:

A. 320

B. 330

C. 350

D. 300 ✓

Q12 Mathematics

Find the value of

$$\frac{1}{2\times4}+\frac{1}{4\times6}+\frac{1}{6\times8}+\cdots\cdots+\frac{1}{48\times50}\ :$$

A. 0.48

B. 0.42

C. 0.46

D. 0.24 ✓

Q13 Mathematics

If the selling price is doubled, the profit becomes three times the original. Find the new profit percentage.

A. 200%

B. 150%

C. 100%

D. 300% ✓

Q14 Mathematics

If $x+y+z=0$, then the value of $\frac{x^2}{yz}+\frac{y^2}{zx}+\frac{z^2}{xy}$ is:

A. 2

B. 4

C. 3 ✓

D. 1

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Q15 Mathematics

Which is the greatest fraction among the following:

$\frac{13}{16}, \frac{17}{24}, \frac{5}{12}, \frac{7}{8}$

A. $\frac{13}{16}$

B. $\frac{7}{8}$ ✓

C. $\frac{5}{12}$

D. $\frac{17}{24}$

Q16 Mathematics

The L.C.M. of $\frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{9}{11}$ is:

A. 45

B. 27

C. 55

D. 36 ✓

Q17 Mathematics

A and B together can finish a task in 12 days. B and C together can finish it in 18 days. If A is three times more efficient than C, then in what time B alone would finish the same task?

A. 22 days

B. 25 days

C. 24 days ✓

D. 20 days

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Q18 Mathematics

If $a : 3 = b : 7 = c : 9$, then $\frac{a+b+c}{a} = ?$

A. $\frac{3}{19}$

B. $\frac{1}{9}$

C. $\frac{19}{3}$ ✓

D. $\frac{1}{3}$

Q19 Mathematics

The value of $\sin 15^\circ \sin 30^\circ \sin 75^\circ$ is:

A. $\frac{1}{2\sqrt{2}}$

B. $\frac{1}{8}$ ✓

C. $\frac{3}{2}$

D. $\frac{1}{4}$

Q20 Mathematics

A wheel makes 1000 revolutions in covering a distance of 154 km. Find the radius (in metre) of the wheel.

A. $24\frac{1}{2}$ ✓

B. $4\frac{1}{2}$

C. $24\frac{1}{3}$

D. $25\frac{1}{2}$

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Q21 Mathematics

An amount of ₹50 is divided among A, B and C such that A gets ₹5 more than B and B gets ₹9 more than C. What is the ratio of their shares?

A. 13:24:13

B. 23:18:9 ✓

C. 23:14:13

D. 14:23:14

Q22 Mathematics

A train covers a distance of 12 km in 25 minutes. If its speed is decreased by 5 km/hr, then the time (in minutes) taken by it to cover the same distance will be:

A. $30\frac{3}{119}$

B. $30\frac{31}{119}$

C. $30\frac{32}{119}$

D. $30\frac{30}{119}$ ✓

Q23 Mathematics

If $a = 2b = 3c$ and $a + b + c = 121$ then $\sqrt{a^2 + b^2 + c^2}$ is:

A. 75

B. 77 ✓

C. 73

D. 72

Q24 Mathematics

The values of mode and mean are 12.5 and 15.2, respectively, in a moderately asymmetrical distribution. Find the median of the distribution.

A. 14.0

B. 14.9

C. 14.3 ✓

D. 14.5

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Q25 Mathematics

If $\sqrt{2116} = 46$ then find the value of

$\sqrt{21.16} + \sqrt{0.2116} + \sqrt{0.002116} + \sqrt{0.00002116}$.

A. 5.1106 ✓

B. 5.1116

C. 5.0016

D. 5.0006

Q26 Mathematics

A vendor bought 12 items for a rupee. How many for a rupee should he sell to gain 20%?

A. 9

B. 10 ✓

C. 8

D. 11

Q27 Mathematics

Calculate the mean for the following data:

8.2, 9.5, 10.3, 11.4, 12.4

A. 10.51

B. 10.7

C. 10.36 ✓

D. 10

Q28 Mathematics

The ratio between the sale price and the cost price of an article is 7 : 4. What is the ratio between the profit and the cost price of the article?

A. 5 : 6

B. 4 : 5

C. 2 : 5

D. 3 : 4 ✓

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Q29 Mathematics

The greatest value of $\sin x + \cos x$ is:

A. $\frac{1}{4}$

B. 1

C. $\sqrt{2}$ ✓

D. $\frac{1}{\sqrt{2}}$

Q30 Mathematics

An air jet covers a certain distance at a speed of 144 km/h in 5 hours. To cover the same distance in 2 hours, what is the required speed of the air jet?

A. 365 km/hr

B. 370 km/hr

C. 360 km/hr ✓

D. 350 km/hr

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A certain sum of money at simple interest amounts to ₹1,512 in 3 years and to ₹1,668 in 4.5 years. The rate of interest on this sum of money is:

A. $\frac{26}{3}\%$ ✓

B. $\frac{24}{3}\%$

C. $\frac{28}{3}\%$

D. 10%

Q2 Mathematics

A father can complete a task in 8 days, while the son can do it in 7 days. If they work on alternate days, with the father starting, then in how many days will the task be completed?

A. $6\frac{1}{2}$

B. $7\frac{1}{2}$ ✓

C. 6

D. 7

Q3 Mathematics

If $a+b+c=17, abc=168$, and $ab+bc+ca=94$, then $a^3+b^3+c^3=?$

A. 622

B. 621

C. 623 ✓

D. 620

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Q4 Mathematics

The HCF of two numbers is 15 and the LCM is 6090. If one of the numbers is 435, then the other is:

A. 120

B. 325

C. 324

D. 210 ✓

Q5 Mathematics

Read the following statements carefully and decide which of the given statement(s) is/are true.

1. A median of a triangle is a line segment joining a vertex to the midpoint of the opposite side.
2. In a triangle, centroid divides the median in 2 : 1 ratio

A. Both statements are false

B. Both statements are true ✓

C. Only statement 2 is true

D. Only statement 1 is true

Q6 Mathematics

Two integers are selected at random from the first 11 natural numbers. If the sum of the integers is even, then the probability that both the numbers are odd is:

A. $\frac{13}{121}$

B. $\frac{3}{5}$ ✓

C. $\frac{4}{9}$

D. $\frac{5}{11}$

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Q7 Mathematics

A pillar is divided into three parts. The first part is $\frac{1}{4}$ of the whole, second part is $\frac{4}{8}$ of the first, and the third is 10 m. The length of the pillar is:

A. 20 m

B. 18 m

C. 16 m ✓

D. 22 m

Q8 Mathematics

A man invests money in three different schemes for 6 years, 10 years and 12 years, at 10%, 12% and 15% simple interest, respectively. If at the completion of each scheme, he gets the same interest then the ratio of the respective investments is:

A. 7 : 4 : 3

B. 5 : 4 : 3

C. 6 : 3 : 2 ✓

D. 4 : 3 : 2

Q9 Mathematics

An article passing through two hands was sold at a total gain of 38% on the original price. If the first person sold it at a gain of 15%, then what was the gain percentage of the second person?

A. 20% ✓

B. 18%

C. 10%

D. 12%

Q10 Mathematics

The sum of all odd numbers between 0 and 52 is:

A. 576

B. 625

C. 729

D. 676 ✓

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Q11 Mathematics

A train starts at a speed of 40 km/h. Its speed increases every 1 h by 20 km/h. How much time does it take to cover a distance of 470 km?

A. 6 h 30 min

B. 4 h 30 min

C. 5 h 30 min ✓

D. 6 h

Q12 Mathematics

After adding 7 to a number, the sum is multiplied by 5, and the product so obtained is divided by 9. From the quotient so obtained, 3 is subtracted to get 12. The number is:

A. 40

B. 20 ✓

C. 60

D. 30

Q13 Mathematics

A man and a boy, working together, can finish a task in 24 days. If, for the last 6 days, the man works alone, then the task can be finished in 26 days. In how many days can the boy alone finish the task?

A. 36

B. 48

C. 54

D. 72 ✓

Q14 Mathematics

The numerator of a fraction is less than its denominator by 2. If we subtract 2 from the numerator and add 2 to the denominator, then the new fraction is $\frac{1}{3}$. What is the original fraction?

A. $\frac{1}{3}$

B. $\frac{3}{7}$

C. $\frac{5}{9}$

D. $\frac{5}{7}$ ✓

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Q15 Mathematics

If $a \oplus b = a - b + \frac{1}{\sqrt{ab}} + \sqrt{\left(\frac{a}{b}\right)}$, then $0.9 \oplus 0.1 = ?$

A. $\frac{30}{212}$

B. $\frac{214}{30}$ ✓

C. $\frac{212}{30}$

D. $\frac{30}{214}$

Q16 Mathematics

Angles A, B and C of a triangle are in arithmetic progression. M is a point on BC such that AM is perpendicular to BC.

What is $\frac{BM}{AB}$?

A. $\frac{1}{2}$ ✓

B. $\frac{3}{4}$

C. $\frac{1}{3}$

D. $\frac{1}{4}$

Q17 Mathematics

If $a = \frac{b^2}{(b-a)}$, then the value of $a^3 + b^3$ is:

A. 1

B. 2

C. 0 ✓

D. 6

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Q18 Mathematics

In a triangle ABC that is right angled at C, $\angle A = \angle B$. The value of sinAsinB + cosAcosB is:

A. $\frac{1}{\sqrt{2}}$

B. $\frac{1}{2}$

C. 1 ✓

D. 0

Q19 Mathematics

If 40% of $(a - b)$ is equal to 20% of $(a + b)$, then b is what percentage of a?

A. 25%

B. 35%

C. $\frac{100}{3}\%$ ✓

D. 28%

Q20 Mathematics

Vikas spends 80% of his salary. His salary is increased by 25% and his expenditure increased by 15%. What is the percentage increase in his savings?

A. 60%

B. 50%

C. 55%

D. 65% ✓

Q21 Mathematics

Two numbers are in the ratio of 9 : 11. If 4 is subtracted from each of the numbers, then their ratio becomes 7 : 9. The sum of these two numbers is:

A. 45

B. 40 ✓

C. 35

D. 30

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Q22 Mathematics

Five salesmen, A, B, C, D and E, of a company are considered for a three member trade delegation to represent the company at an international trade conference. What is the probability that A gets selected?

A. $\frac{3}{5}$ ✓

B. $\frac{2}{5}$

C. $\frac{4}{5}$

D. $\frac{1}{5}$

Q23 Mathematics

Anisha purchased a TV at $\frac{4}{5}$ th of its initial selling price and then sold it at 4% more than its initial selling price. What is Anisha's gain percentage?

A. 30% ✓

B. 10%

C. 40%

D. 20%

Q24 Mathematics

Find the value of $\frac{(19 \times 9 + 31 \times 10 + 32 \times 11)}{(233.25 \times 2 - 50)}$.

A. 2 ✓

B. 4

C. 6

D. 8

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Q25 Mathematics

Find the value of $\cot 19^\circ \left(\cot 71^\circ \cos^2 21^\circ + \frac{1}{\tan 71^\circ \sec^2 69^\circ}\right)$.

A. -1

B. $\frac{1}{2}$

C. 0

D. 1 ✓

Q26 Mathematics

Find the least positive number, which when divided by 5, 6, 8, 9 and 12, gives 1 as a remainder in each case and is completely divisible by 13.

A. 3601 ✓

B. 3627

C. 3640

D. 3614

Q27 Mathematics

If $\frac{5+2\sqrt{3}}{2-\sqrt{3}} = x + y\sqrt{3}$, then $(x, y) = ?$

A. $(4, 9)$

B. $(2, 3)$

C. $(9, 16)$

D. $(16, 9)$ ✓

Q28 Mathematics

In a parallelogram, the altitude is twice the corresponding base, and the area of the parallelogram is 288 m^2. The altitude of the parallelogram is:

A. 12 m

B. 18 m

C. 24 m ✓

D. 36 m

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Q29 Mathematics

If the hypotenuse of a right angled isosceles is 8 cm, then the area of the triangle is:

A. $16\ cm^2$ ✓

B. $8\ cm^2$

C. $\sqrt{32}\ cm^2$

D. $2\sqrt{32}\ cm^2$

Q30 Mathematics

What is the largest number that 2270, 3739 and 6677 must be divided by to obtain the same remainder in each case?

A. 1489

B. 1469 ✓

C. 1479

D. 1459

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Q1 Mathematics

Solve the following.

$$\frac{\frac{1}{2} \div \frac{3}{4}\left(\frac{2}{5} - \frac{1}{3}\right)}{1\frac{2}{3} \times \frac{3}{4} - \frac{1}{4} \times \frac{2}{3}} = ?$$

A. $\frac{2}{195}$

B. $\frac{3}{195}$

C. $\frac{9}{195}$

D. $\frac{8}{195}$ ✓

Q2 Mathematics

একটি ছেলে একটি আয়তাকার ক্ষেত্রের পরস্পর সংলগ্ন বাহুদুটি বরাবর হাঁটছিলো। যদি সে কর্ণ বরাবর হাঁটতো তাহলে দৈর্ঘ্যের এক-তৃতীয়াংশ দূরত্ব বাঁচাতে পারতো। বড় বাহুটির সাথে ছোট বাহুটির অনুপাত নির্ণয় করুন:

A. 2 : 5

B. 3 : 5

C. 12 : 3

D. 12 : 5 ✓

Q3 Mathematics

If $y + \frac{1}{z} = 1$ and $x + \frac{1}{y} = 1$, then what is the value of xyz?

A. 2

B. -1 ✓

C. 1

D. 0

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Q4 Mathematics

Find the compound interest on ₹25,000 for 2 years at the rate of 10% per annum when the interest is compounded annually.

A. ₹2,500

B. ₹5,000

C. ₹5,200

D. ₹5,250 ✓

Q5 Mathematics

একটি ধনাত্মক সংখ্যা শ্রেণীতে তৃতীয় সংখ্যাটি নির্ণয় করুন যাদের 2, 3 এবং 6 দিয়ে ভাগ করলে যথাক্রমে 1, 2 এবং 5 ভাগশেষ থাকবে?

A. 23

B. 17 ✓

C. 11

D. 29

Q6 Mathematics

Which of the following is a common factor of $(89^{89} + 87^{89})$ and $(89^{97} + 87^{97})$.

A. 176 ✓

B. 186

C. 174

D. 178

Q7 Mathematics

Which largest number will divide 627 and 233 leaving remainders of 11 and 13 respectively?

A. 23

B. 22

C. 44 ✓

D. 33

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Q8 Mathematics

A sum of money deposited at compound interest becomes double after 8 years. After 32 years, it will become:

A. 12 times

B. 18 times

C. 14 times

D. 16 times ✓

Q9 Mathematics

An item is sold for ₹289 at a loss of 15%. What is the cost price (in ₹) of the item?

A. 341

B. 342

C. 320

D. 340 ✓

Q10 Mathematics

Find the number of sides of a regular polygon if the measure of each of its exterior angle is 36°.

A. 12

B. 25

C. 6

D. 10 ✓

Q11 Mathematics

Which of the following is a prime number?

A. 143

B. 137 ✓

C. 273

D. 147

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Q12 Mathematics

A is 20% more efficient than B. How much time will they be working together to complete a job which A alone could have completed in 35 days?

A. $29\frac{1}{11}$ days

B. $1\frac{1}{11}$ days

C. $9\frac{1}{11}$ days

D. $19\frac{1}{11}$ days ✓

Q13 Mathematics

If $\sec A + \tan A = \frac{3}{2}$, then find $\sec A - \tan A$

A. $\frac{3}{5}$

B. $\frac{2}{5}$

C. $\frac{3}{4}$

D. $\frac{2}{3}$ ✓

Q14 Mathematics

If $1.2 : y :: 3.6 : 4.8$, then find the value of y.

A. $y = \frac{5}{8}$

B. $y = \frac{8}{5}$ ✓

C. $y = \frac{7}{5}$

D. $y = \frac{4}{5}$

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Q15 Mathematics

A circle of radius 9 cm circumscribed a regular hexagon. The length of the side of the hexagon is:

A. 12 cm

B. 10 cm

C. 7 cm

D. 9 cm ✓

Q16 Mathematics

A rectangular room has an area 60 m^2 and perimeter 34 m. Find the length of its diagonal.

A. 14.5 m

B. 12 m

C. 13 m ✓

D. 13.5 m

Q17 Mathematics

Find the value of x.

$$\frac{(17)^3 + 7^3}{(17)^2 + 7^2 - x} = 24$$

A. $x = 117$

B. $x = 119$ ✓

C. $x = 121$

D. $x = 127$

Q18 Mathematics

If $3x + y = 5$ and $4x - 3y = 2$, then the ratio x : y is:

A. 13 : 14

B. 17 : 14 ✓

C. 17 : 13

D. 7 : 17

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Q19 Mathematics

In a moderately asymmetrical distribution, the values of the mode and the mean are 31.5 and 34.2 respectively. Find the median of the distribution.

A. 30.3

B. 34.3

C. 33.0

D. 33.3 ✓

Q20 Mathematics

What would be the highest value of X in the given equation?

$4X1 + 5Y3 + 2Z7 = 1181$

A. 5

B. 3

C. 7 ✓

D. 4

Q21 Mathematics

Find the positive value of

$$\sqrt{41 - \sqrt{21 + \sqrt{19 - \sqrt{9}}}} = ?$$

A. 6 ✓

B. 7

C. 5

D. 4

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Q22 Mathematics

The value of $\frac{\left(3\frac{1}{5}-\frac{3}{5}\right)\div\frac{8}{5}}{1\frac{1}{7}\div\left\{\frac{1}{7}-\left(\frac{1}{7}\div\frac{1}{5}\right)\right\}}$ is:

A. $-\frac{1}{16}$

B. $\frac{13}{16}$

C. $\frac{3}{16}$

D. $-\frac{13}{16}$ ✓

Q23 Mathematics

Find the value of

$\tan 11^\circ \tan 41^\circ \tan 45^\circ \tan 49^\circ \tan 79^\circ$.

A. -1

B. 1 ✓

C. 2

D. 0

Q24 Mathematics

The ratio of the speeds of a car, a train and a bus is $4:7:3$. The average of the speeds of the car, the bus and the train is 70 km/h. What is the average of the speeds of the car and the train ?

A. 81 km/h

B. 83 km/h

C. 82.5 km/h ✓

D. 81.5 km/h

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Q25 Mathematics

In a group of 36 persons, where each one drinks at least one of tea or milk, 18 persons drink tea but not milk and 22 persons drink tea. How many of them drink milk but not tea?

A. 18

B. 13

C. 15

D. 14 ✓

Q26 Mathematics

A person purchased a vehicle for ₹5,94,828 and sold it for ₹6,60,920. What is the percentage profit on the vehicle?

A. $11\frac{1}{9}$ ✓

B. $11\frac{9}{11}$

C. $1\frac{1}{9}$

D. $1\frac{9}{11}$

Q27 Mathematics

A can complete a certain job in 18 days. B is 40% more efficient than A. How many days will B alone take to complete the same job?

A. $10\frac{6}{7}$

B. $12\frac{6}{7}$ ✓

C. $12\frac{6}{17}$

D. $10\frac{5}{18}$

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Q28 Mathematics

If 65% of a number is added to 63, then the result is the number itself. The number is:

A. 200

B. 165

C. 180 ✓

D. 100

Q29 Mathematics

Calculate the mean for the following data.

1.5, 3.2, 5.7, 7.5, 11.2

A. 5.62

B. 5.92

C. 5.89

D. 5.82 ✓

Q30 Mathematics

30% of 50% of 85% of an amount is 51. What is the amount?

A. 300

B. 350

C. 400 ✓

D. 250

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The total surface area of a cube of side measuring 2 m is:

A. $20\ m^2$

B. $25\ m^2$

C. $30\ m^2$

D. $24\ m^2$ ✓

Q2 Mathematics

By how much is $\frac{4}{5}$ th of 3500 more than $\frac{1}{3}$ rd of 6000?

A. 2800

B. 2000

C. 1800

D. 800 ✓

Q3 Mathematics

The value of

$sin45^\circ sec45^\circ tan45^\circ + cos60^\circ sin30^\circ sin90^\circ - 4cos60^\circ$ is:

A. $\frac{-5}{4}$

B. $\frac{5}{4}$

C. $\frac{-3}{4}$ ✓

D. $\frac{3}{4}$

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Q4 Mathematics

Two positive numbers are in the ratio 7 : 9 and the product of their LCM and HCF is 25200. The sum of the numbers is:

A. 320 ✓

B. 400

C. 256

D. 140

Q5 Mathematics

If the radius and height of a cylinder are 25 cm and 42 cm respectively, then its lateral surface area is:

A. 1960 cm^2

B. 660 cm^2

C. 6600 cm^2 ✓

D. 6000 cm^2

Q6 Mathematics

The median of 151, 153, 158, 165, 150, 140, 170, 153, 158 and 151 is:

A. 165

B. 151

C. 153 ✓

D. 140

Q7 Mathematics

The students in three classes are in the ratio 2 : 3 : 5. If 30 students are increased in each class, the ratio changes to 4 : 5 : 7. The total number of students after the increase is:

A. 150

B. 240 ✓

C. 180

D. 210

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Q8 Mathematics

If an amount gets tripled in $12\frac{1}{2}$ years, the rate of simple interest is:

A. 12%

B. 16% ✓

C. 10%

D. 8%

Q9 Mathematics

Find the positive value of the following square root

$$\sqrt{56+\sqrt{56+\sqrt{56+\cdots}}} = ?$$

A. 4

B. 8 ✓

C. 12

D. 56

Q10 Mathematics

How long will it take a sum of money invested at 10% per annum at simple interest to increase its value by 40%?

A. 6 years

B. 9 years

C. 4 years ✓

D. 8 years

Q11 Mathematics

If θ is an acute angle and $\sin\theta = \cos\theta$, then $2cot^2\theta + sin^2\theta - 1 = ?$

A. $\frac{3}{2}$ ✓

B. 1

C. 0

D. −1

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Q12 Mathematics

The compound interest (in ₹) for ₹10,000 at 10% per annum in 3 years is:

A. 3130

B. 1333

C. 3310 ✓

D. 3003

Q13 Mathematics

A rectangle with dimensions of 24 cm and 28 cm was reconstructed to make a rhombus with the same perimeter as that of the rectangle and 120° as one of its angles. The area of the rhombus was:

A. $\frac{338\sqrt{3}}{3}\ cm^2$

B. $\frac{169\sqrt{3}}{3}\ cm^2$

C. $169\sqrt{3}\ cm^2$

D. $338\sqrt{3}cm^2$ ✓

Q14 Mathematics

If $(\sqrt{5}+1)^2 = a + b\sqrt{5}$, then find a, b where $(a > b)$

A. 8, 6

B. 6, 4

C. 6, 2 ✓

D. 4, 2

Q15 Mathematics

The LCM and HCF of two numbers are 4700 and 2 respectively. If one of the given number is 100, then the other number is:

A. 47

B. 2

C. 98

D. 94 ✓

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Q16 Mathematics

Which is the smallest fraction among the following fractions?

$\frac{3}{9}, \frac{8}{14}, \frac{5}{8}, \frac{4}{9}$

A. $\frac{8}{14}$

B. $\frac{5}{8}$

C. $\frac{4}{9}$

D. $\frac{3}{9}$ ✓

Q17 Mathematics

A gardener wants to plant trees in a garden in rows. If the number of trees in each row is the same, and there are 105 or 210 or 420 rows, then no tree will be left. Find the least number of trees that can be planted.

A. 315

B. 420 ✓

C. 210

D. 105

Q18 Mathematics

The mean of the marks scored by 50 students was found to be 40. Later on it was discovered that a score of 43 was misread as 23. The correct mean is:

A. 42

B. 41.5

C. 40.5 ✓

D. 42.5

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Q19 Mathematics

A motor car worth ₹2,00,000/- is sold by Ramu at 5% profit to Rahul. Rahul sells the motor car back to Ramu at 2% loss. Ramu's net profit (in ₹) in complete transaction is:

A. 4,200/- ✓

B. 3,208/-

C. 2,058/-

D. 3,200/-

Q20 Mathematics

$\sin 25^\circ \cos 35^\circ + \cos 25^\circ \sin 35^\circ = ?$

A. $\frac{\sqrt{3}}{2}$ ✓

B. 1

C. $\frac{1}{\sqrt{2}}$

D. $\frac{1}{2}$

Q21 Mathematics

If $ab = 10$ and $a^2 + b^2 = 29$, then $(a - b)^2 = ?$

A. 9 ✓

B. 3

C. 19

D. 39

Q22 Mathematics

A 150m long train passes a canal of 102m in 7 seconds. The speed of the train is

A. 42 m/s

B. 36 m/s ✓

C. 21 m/s

D. 72 m/s

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Q23 Mathematics

The difference between the place values of 2 and 3 in the number 128935 is:

A. 30

B. 300

C. 20000

D. 19970 ✓

Q24 Mathematics

Two trains 131 m and 89 m long are moving in opposite direction one at the speed of 42 Km/h, the other at a speed of 30 Km/h. In what time will they be completely clear of each other from the moment they meet?

A. 20 s

B. 10 s

C. 11 s ✓

D. 18 s

Q25 Mathematics

The sum of three consecutive natural numbers is 120. Find the largest number.

A. 39

B. 37

C. 41 ✓

D. 117

Q26 Mathematics

P and Q can reap a field in 9 days, Q and R can reap it in 12 days and P and R in 18 days. Find how many days will they take to reap the field if all three work together?

A. 4 days

B. 39 days

C. 19.5 days

D. 8 days ✓

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Q27 Mathematics

The compound interest on a sum of money at 5% per annum for 3 years is ₹6,305/-. Find the simple interest (in ₹) for the same sum at the same rate of interest for the same number of years.

A. 6,000/- ✓

B. 4,000/-

C. 3,600/-

D. 5,000/-

Q28 Mathematics

In a college, there are 3600 students, out of which 82% are football players, 7% are kabaddi players, 4% are chess players and the remaining are cricket players. The number of cricket players is:

A. 152

B. 136

C. 252 ✓

D. 126

Q29 Mathematics

If $x + \frac{1}{x} = 2$, then $x^3 + \frac{1}{x^3} = ?$

A. 64

B. 8

C. 14

D. 2 ✓

Q30 Mathematics

Two positive numbers are in the ratio 5 : 4 and the product of their LCM and HCF is 18000. Find the sum of the two numbers.

A. 270 ✓

B. 180

C. 150

D. 900

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

What should be added to each term of the ratio 7 : 11 to make it equal to 4 : 5?

A. 11

B. 18

C. 9 ✓

D. 16

Q2 Mathematics

Find the number which when subtracted from 5824, gives a number exactly divisible by each of 20, 28, 36 and 48.

A. 780

B. 782

C. 786

D. 784 ✓

Q3 Mathematics

A can complete a task in 20 days. B is 75% more efficient than A. The number of days B will take to complete the same work is:

A. $11\frac{3}{7}$ ✓

B. $1\frac{3}{7}$

C. $10\frac{3}{7}$

D. $1\frac{3}{17}$

Q4 Mathematics

The number between 3000 and 4000 which is divisible by 9, 12, 18, 21 and 35 is:

A. 3850

B. 3780 ✓

C. 3580

D. 3945

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Q5 Mathematics

A woman buys a car at 24% discount of the printed price and sells it at a 20% higher of printed price. Her percentage gain is:

A. $57\frac{7}{19}\%$

B. $5\frac{17}{19}\%$

C. $7\frac{17}{19}\%$

D. $57\frac{17}{19}\%$ ✓

Q6 Mathematics

Evaluate the following.

$$\left(\frac{0.129-0.010}{0.5\times 0.5+0.09-0.17}\right)$$

A. 0.17

B. 0.7 ✓

C. 0.79

D. 0.27

Q7 Mathematics

Evaluate the following.

$$\frac{2+\sqrt{5}}{2-\sqrt{5}}+\frac{2-\sqrt{5}}{2+\sqrt{5}}+\frac{\sqrt{5}-1}{\sqrt{5}+1}$$

A. $\frac{-35-\sqrt{5}}{2}$

B. $\frac{-32-\sqrt{5}}{2}$

C. $\frac{-31-\sqrt{5}}{2}$

D. $\frac{-33-\sqrt{5}}{2}$ ✓

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Q8 Mathematics

If the simple interest for 8 years is equal to 40% of the principal amount, it will be equal to the principal amount at the same interest rate after:

A. 18 years

B. 16 years

C. 15 years

D. 20 years ✓

Q9 Mathematics

If $2x - 3y = -1$ and $\frac{x}{x+y} = \frac{7}{12}$, then the value of $2xy$ is:

A. 75

B. 65

C. 60

D. 70 ✓

Q10 Mathematics

The sum of $\frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \cdots + \frac{1}{n(n+1)}$ is:

A. $\frac{n}{n+1}$ ✓

B. $\frac{n(n+1)}{2}$

C. $\frac{n+1}{2n}$

D. $\frac{n+1}{n}$

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Q11 Mathematics

2 men and 3 boys can complete a piece of work in 18 days while 3 men and 2 boys can complete the same work in 15 days. In how many days will 4 men and 2 boys complete the work?

A. $1\frac{16}{19}$

B. $1\frac{1}{19}$

C. $11\frac{16}{19}$ ✓

D. $11\frac{6}{19}$

Q12 Mathematics

The greatest number of five digits which is completely divisible by 12, 22, 42 and 55 is:

A. 94010

B. 96050

C. 97020 ✓

D. 99025

Q13 Mathematics

Which of the following numbers is prime?

A. 571 ✓

B. 323

C. 715

D. 513

Q14 Mathematics

The profit earned after selling an article for ₹1,875 is the same as the loss occurred after selling the article for ₹1,385. What is the cost price (in ₹) of the article?

A. ₹1,360

B. ₹1,650

C. ₹1,630 ✓

D. ₹1,660

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Q15 Mathematics

If the radius of a circle is decreased by 35%, then its area decreases by:

A. $57\frac{3}{4}\%$ ✓

B. $56\frac{3}{4}\%$

C. $57\frac{1}{4}\%$

D. $57\frac{2}{4}\%$

Q16 Mathematics

Calculate the variance from the following data:

3, 6, 5, 2, 4

A. 3

B. 2 ✓

C. 2.2

D. 2.5

Q17 Mathematics

What would be the highest value of X and Z in the given equation?

9X7 + 8YZ + 7Z1 = 2526

A. X=9, Z=2

B. X=7, Z=8

C. X=3, Z=8 ✓

D. X=9, Z=1

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Q18 Mathematics

When the radius of a wheel is increased by 8% find the ratio of the number of revolutions required by the old to the new wheel in travelling a distance of 100 m.

A. $23 : 25$

B. $27 : 20$

C. $20 : 23$

D. $27 : 25$ ✓

Q19 Mathematics

Calculate the mean for the following data.

2.7, 5.3, 7.6, 9.5, 15.4

A. 8.75

B. 8.50

C. 8.25

D. 8.10 ✓

Q20 Mathematics

If $\sqrt{\frac{1-\cos 2\theta}{1+\cos 2\theta}} = \frac{1}{\sqrt{3}}$, then the value of θ is:

A. $2n\pi + \frac{\pi}{6}$

B. $n\pi + \frac{\pi}{3}$

C. $n\pi + \frac{\pi}{4}$

D. $n\pi + \frac{\pi}{6}$ ✓

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Q21 Mathematics

$\frac{4}{5}\%$ is equivalent to which of the following fractions?

A. $\frac{4}{125}$

B. $\frac{1}{725}$

C. $\frac{1}{125}$ ✓

D. $\frac{1}{25}$

Q22 Mathematics

If the income of A is 15% more than that of B and the income of B is 20% less than that of C, then the incomes of A, B and C respectively are in the ratio:

A. 20 : 23 : 25

B. 23 : 25 : 20

C. 23 : 20 : 25 ✓

D. 25 : 23 : 20

Q23 Mathematics

The angle of elevation of the top of a tower is 30°, and on walking 20 m towards the tower, the angle of elevation becomes 60°. Find the height of the tower.

A. $2\sqrt{3}$ m

B. $\frac{1}{\sqrt{3}}$ m

C. $10\sqrt{3}$ m ✓

D. $\sqrt{3}$ m

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Q24 Mathematics

Simplify the following.

$$240 \div \frac{5}{1 \div \frac{4}{1 \div \frac{5}{1 \div 3}}}$$

A. $\frac{5}{3}$

B. $\frac{4}{5}$ ✓

C. $\frac{4}{3}$

D. $\frac{5}{4}$

Q25 Mathematics

A person desires to reach his destination, 84 km away, in 4 h. For the first half of the distance, his speed was 28 km/h. What should his speed be for the rest of the distance?

A. $16\frac{1}{5}$ km/h

B. 16 km/h

C. $16\frac{4}{5}$ km/h ✓

D. $16\frac{2}{5}$ km/h

Q26 Mathematics

If A is 120% of B, then what percentage of (A + B) is B?

A. $4\frac{5}{11}$

B. $40\frac{5}{11}$

C. $5\frac{4}{11}$

D. $45\frac{5}{11}$ ✓

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Q27 Mathematics

The product of the LCM and HCF of two numbers is 24. The difference of the two numbers is 2. Find the numbers.

A. 2 and 4

B. 8 and 10

C. 8 and 6

D. 4 and 6 ✓

Q28 Mathematics

Two regular polygons have the same number of sides. If the lengths of the sides are in the ratio 3 : 5, then the ratio of their respective areas is:

A. 6 : 11

B. 9 : 25 ✓

C. 4 : 7

D. 3 : 23

Q29 Mathematics

A sum of money doubles itself at compound interest in 8 years. In how many years will it become eight times itself at the same compound interest rate?

A. 15 years

B. 24 years ✓

C. 18 years

D. 20 years

Q30 Mathematics

What is the value of β, if the equation $\frac{\beta(x+1)^2}{3} + \frac{(y+2)^2}{4} = 1$ is a circle?

A. $\frac{4}{3}$

B. 1

C. $\frac{3}{4}$ ✓

D. 12

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The square root of 4096 is:

A. 66

B. 64 ✓

C. 63

D. 62

Q2 Mathematics

If 20% of A is equal to 25% of B, then 28% of A is equal to what percent of B?

A. 35 ✓

B. 30

C. 53

D. 25

Q3 Mathematics

Find the value of $777\frac{1}{5} + 777\frac{2}{5} + 777\frac{3}{5} + 777\frac{4}{5}$.

A. 3110 ✓

B. 3018

C. 3000

D. 3108

Q4 Mathematics

If $65 \times 65 = 4225$, then the value of $6.5 \times 6.5 = ?$

A. 42.25 ✓

B. 42025

C. 422.5

D. 0.004225

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Q5 Mathematics

A class consists of 60 students with the ratio of girls to boys as 5 : 7. If 5 boys leave the class, the ratio of boys to girls would become:

A. $6 : 5$ ✓

B. $5 : 6$

C. $5 : 7$

D. $7 : 5$

Q6 Mathematics

If $\sin\theta + \cos\theta = \frac{\sqrt{7}}{2}$, then find the value of $\sin\theta - \cos\theta$.

A. 0

B. 1

C. $\frac{1}{2}$ ✓

D. $\sqrt{2}$

Q7 Mathematics

The length and breadth of a rectangle are in the ratio 2 : 1. The numerical values of the perimeter and the area of the rectangle are in the ratio 3 : 4. Find the length of the rectangle.

A. 16 units

B. 4 units

C. 6 units

D. 8 units ✓

Q8 Mathematics

If the HCF and LCM of two numbers are 8 and 160 respectively, then the sum of the numbers is:

A. 72 ✓

B. 80

C. 74

D. 70

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Q9 Mathematics

If $x^2 + y^2 = 41$ and $xy = 20$, then find the value of $\frac{1}{x} + \frac{1}{y}$.

A. $\frac{9}{20}$ ✓

B. $\frac{20}{41}$

C. $\frac{3}{20}$

D. $\frac{41}{20}$

Q10 Mathematics

If the mean of five observations x, x-1, x-2, x-3 and x-4 is 20, then the mean of the first two observations is:

A. 23.5

B. 22.5

C. 21.5 ✓

D. 20.5

Q11 Mathematics

The cost of 10 pencils and 12 pens is ₹150. What is the cost of 30 pencils and 36 pens?

A. ₹600

B. ₹450 ✓

C. ₹200

D. ₹300

Q12 Mathematics

Which of the following rational number lies between 9.2 and 10.5?

A. 10.67

B. 9.08

C. 9.15

D. 9.55 ✓

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Q13 Mathematics

If $A = \frac{2}{3}$ B and $B = \frac{1}{3}$ C, then find the value of A : B : C is _____.

A. 1 : 3 : 9

B. 3 : 9 : 2

C. 2 : 3 : 9 ✓

D. 9 : 3 : 2

Q14 Mathematics

If $x = 3$ and $y = 5$, then the value of $(4x^2 + 4xy + y^2)$ is:

A. 121 ✓

B. 49

C. 120

D. 9

Q15 Mathematics

If the inradius of a triangle with perimeter 64 cm is 8 cm, then find the area of the triangle.

A. 120 cm^2

B. 256 cm^2 ✓

C. 265 cm^2

D. 146 cm^2

Q16 Mathematics

The sum of 3% of a number and 2% of the other number is equal to $\frac{3}{4}$ of the sum of 3% of the first number and 5% of the second number. The ratio of the 1^{st} number to 2^{nd} numbers is:

A. 3 : 5

B. 3 : 7

C. 7 : 3 ✓

D. 3 : 4

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Q17 Mathematics

A train running at 70 km/h passes a person riding parallel to the railway line moving in the opposite direction in 2 seconds. If the rider goes in the same direction, the train takes 5 seconds to pass him. What is the speed of the rider?

A. 30 km/h ✓

B. 40 km/h

C. 10 km/h

D. 20 km/h

Q18 Mathematics

The external angle of a regular polygon is 72°. Find the internal angle.

A. 160°

B. 108° ✓

C. 120°

D. 180°

Q19 Mathematics

One-fourth of one-eighth of a number is 300. What is one-fifth of the same number?

A. 1900

B. 1910

C. 1890

D. 1920 ✓

Q20 Mathematics

A man sells flowers at 4% loss on cost of price but he uses 20g instead of 25g weight to measure. What is his percentage profit?

A. 40%

B. 60%

C. 20% ✓

D. 10%

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Q21 Mathematics

Solve the following:

$4\frac{1}{3} \times 2\frac{4}{5} \div 2\frac{1}{3} = ?$

A. $6\frac{1}{5}$

B. $5\frac{1}{5}$ ✓

C. $6\frac{6}{5}$

D. $1\frac{6}{5}$

Q22 Mathematics

If $0.02x = 0.5y$, then find the value of $\frac{x-y}{x+y}$ is:

A. $\frac{13}{12}$

B. $\frac{11}{12}$

C. $\frac{12}{13}$ ✓

D. $\frac{11}{13}$

Q23 Mathematics

If $\tan 15^\circ = 2-\sqrt{3}$, what is the value of $\tan 15^\circ \cot 75^\circ + \tan 75^\circ \cot 15^\circ$.

A. 8

B. 14 ✓

C. 12

D. 10

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Q24 Mathematics

A vendor purchased 300 mangoes for ₹600. Some of the mangoes were rotten and were thrown away. He sold the remaining mangoes at ₹3 each and made a profit of ₹210. The percentage of mangoes thrown away is:

A. 20%

B. 10% ✓

C. 5%

D. 30%

Q25 Mathematics

If $5sin\theta + 12\ cos\theta = 13$, then find the value of $5cos\theta - 12\ sin\theta$.

A. -2

B. 1

C. 0 ✓

D. -1

Q26 Mathematics

A train passes two persons who are walking in the opposite direction of the train at the rates of 4 m/s and 10 m/s in 10 seconds and 8 seconds respectively. What is the speed of the train?

A. 15 m/s

B. 20 m/s ✓

C. 40 m/s

D. 10 m/s

Q27 Mathematics

Solve the following:

$684 \div 9 \div 0.5 = ?$

A. 124

B. 130

C. 152 ✓

D. 160

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Q28 Mathematics

Find the selling price, when cost price is ₹70 and loss is 10%.

A. ₹62

B. ₹60

C. ₹63 ✓

D. ₹36

Q29 Mathematics

The length of a rectangle is 2 cm more than its breadth. If the perimeter of the rectangle is 20 cm, then its area is:

A. $20\ cm^2$

B. $24\ cm^2$ ✓

C. $4\ cm^2$

D. $14\ cm^2$

Q30 Mathematics

Worker A is thrice as efficient as worker B. They can together finish a task in 18 days. How many days will A alone take to finish the work?

A. 24 days ✓

B. 42 days

C. 12 days

D. 48 days

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Each side of a square is increased by 50%. Find the percentage increase in its area.

A. 125% ✓

B. 50%

C. 25%

D. 150%

Q2 Mathematics

A and B together can do a piece of work in 21 days. With the help of C, they can finish it in 14 days. In how many days will C alone be able to finish the work?

A. 42 days ✓

B. 7 days

C. 35 days

D. $\frac{35}{2}$ days

Q3 Mathematics

A student must score 40% marks to pass an examination. He gets 70 marks and fails by 20 marks. Find the maximum marks.

A. 225 ✓

B. 360

C. 175

D. 125

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Q4 Mathematics

Simplify.

$$\frac{9\sqrt{144}}{4} \times 3\sqrt{484} \times \frac{1}{\sqrt{729}}$$

A. 88

B. 84

C. 66 ✓

D. 63

Q5 Mathematics

Select the option that can replace the question mark (?) in the given equation.

$8432 + 937 + 260 - ? = 5605 + 713$

A. 3311 ✓

B. 4311

C. 3211

D. 15947

Q6 Mathematics

Six years hence Sunil will be twice as old as Kamal. Two years ago he was four times as old as Kamal. Find the present age of Kamal.

A. 4 years

B. 6 years ✓

C. 14 years

D. 18 years

Q7 Mathematics

The average marks obtained by a group of 25 students was 36. One student left the group, as a result of which the average of the remaining students rose to 37.5. Soon after another student joined the same group, as a result of which the average marks dropped to 37.2. Find the average marks of the student who left and the student who joined the group.

A. 15 ✓

B. 22.5

C. 30

D. 37.5

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Q8 Mathematics

Karuna reads $\frac{1}{4}$ th of a book in one hour. What fraction of the book will she be able to read in 2 h 15 min?

A. $\frac{9}{16}$ ✓

B. $\frac{1}{8}$

C. 9

D. $\frac{1}{9}$

Q9 Mathematics

Radius of a solid spherical ball with volume 38808 cm^3 is:

A. 9261 cm

B. 21 cm ✓

C. $\frac{21}{2}$ cm

D. 42 cm

Q10 Mathematics

If $(x+1)$ and $(x+2)$ are factors of $ax^3 + 3x^2 + bx$ then the values of a and b are:

A. $a=2$ and $b=1$

B. $a=2$ and $b=3$

C. $a=3$ and $b=2$

D. $a=1$ and $b=2$ ✓

Q11 Mathematics

An observer 1.5 m tall is 24.5 m away from a 26 m high tower. The angle of elevation of the top of the tower from the eye of the observer is:

A. 60°

B. 75°

C. 30°

D. 45° ✓

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Q12 Mathematics

Simplify.

$10 - 2\frac{1}{5} + 5\frac{1}{5}$

A. 13 ✓

B. $\frac{87}{5}$

C. $13\frac{1}{5}$

D. 5

Q13 Mathematics

Simplify.

$$\frac{320 \div 8 \times 8 \div 4 \times \frac{1}{2}}{180 \times 5 \div 45 - 4}$$

A. 10

B. $\frac{5}{2}$ ✓

C. $\frac{5}{8}$

D. $\frac{2}{5}$

Q14 Mathematics

Evaluate:

$3 \tan 25° \tan 35° \tan 45° \tan 55° \tan 65°$

A. 0

B. $3\sqrt{3}$

C. 3 ✓

D. 1

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Q15 Mathematics

A man bought a number of apples at 5 for ₹50 and an equal number at 6 for ₹50. If he sells them at 11 for ₹100, what would be his percentage profit or loss?

A. $\frac{100}{121}$% profit

B. $\frac{121}{100}$% loss

C. $\frac{121}{100}$% profit

D. $\frac{100}{121}$% loss ✓

Q16 Mathematics

A letter of English alphabet is chosen at random. Probability of getting a vowel is:

A. $\frac{5}{21}$

B. $\frac{1}{4}$

C. $\frac{5}{26}$ ✓

D. $\frac{6}{25}$

Q17 Mathematics

A shopkeeper bought 25 chairs from a manufacturer for ₹37,500 and sold them at a profit equal to the selling price of 5 chairs. Then the SP of one chair is:

A. ₹1,250

B. ₹1,500

C. ₹1,875 ✓

D. ₹1,200

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Q18 Mathematics

How many decimal numbers can be found between 0.225 and 0.227?

A. 226

B. 2

C. 1

D. infinitely many ✓

Q19 Mathematics

Mean of first ten odd natural numbers is:

A. 10 ✓

B. 9

C. 19

D. 11

Q20 Mathematics

If $a - b = 4$ and $a^2 + b^2 = 10$ then the value of $a^3 - b^3$ is:

A. 64

B. 100

C. –8

D. 28 ✓

Q21 Mathematics

Simplify.

$9 + (45 \div 9) - 8 \times (-4)$

A. –171

B. 38

C. 46 ✓

D. 8

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Q22 Mathematics

At what annual rate of compound interest, compounded semi-annually, will ₹57,600 become ₹72,900 in one year?

A. 50% per annum

B. 12.5% per annum

C. 6.25% per annum

D. 25% per annum ✓

Q23 Mathematics

Simple interest on ₹50,000 at certain rate for 5 years is ₹20,000. The rate of interest is:

A. 5% per annum

B. 8% per annum ✓

C. 4% per annum

D. 25% per annum

Q24 Mathematics

The least multiple of 7 which when divided by 8, 12 and 16 leaves 3 as remainder in each case.

A. 48

B. 147 ✓

C. 70

D. 56

Q25 Mathematics

HCF of 12, 39 and 54 is:

A. 1404

B. 3 ✓

C. 6

D. 52

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Q26 Mathematics

If length of a rectangle is doubled, what change should be made in its breadth so that its area remains the same?

A. Breadth should be doubled

B. Breadth should be made one fourth

C. Breadth should be kept unchanged

D. Breadth should be halved ✓

Q27 Mathematics

A scooterist travels for 5 h, the first half of the distance at 21 km/h, and the rest at 24 km/h. Find the distance travelled.

A. 56 km

B. 112 km ✓

C. 225 km

D. 224 km

Q28 Mathematics

Each interior angle of a regular polygon is 140°.

Find the number of sides of the polygon.

A. 15

B. 18

C. 12

D. 9 ✓

Q29 Mathematics

The average of salaries of husband and wife is ₹65,000 and ratio of their salaries is 15 : 11 respectively. How much is the salary of the wife?

A. ₹75,000

B. ₹27,500

C. ₹32,500

D. ₹55,000 ✓

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Q30 Mathematics

A man and a woman can complete a job in 8 and 12 days respectively. How many women must assist 2 men to complete the job in 2 days?

A. 5

B. 3 ✓

C. 2

D. 4

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Three numbers are in the ratio 1 : 2 : 3. If their HCF is 8, then what is their LCM?

A. 96

B. 24

C. 120

D. 48 ✓

Q2 Mathematics

A sum of money doubles itself at compound interest in 12 years. In how many years will it become 4 times?

A. 24 ✓

B. 18

C. 20

D. 36

Q3 Mathematics

If $(3^x)(3^y) = 9$ and $(25^x)(5^y) = 625$, then what is (x, y)?

A. (3, -5)

B. (1, 2)

C. (2, 0) ✓

D. (2, 4)

Q4 Mathematics

If $x + \frac{1}{x} = 2\cos\theta$, then what is the value of $x^2 + \frac{1}{x^2}$?

A. $\cos 2\theta$

B. $\sin 2\theta$

C. $2\cos 2\theta$ ✓

D. $2\sin 2\theta$

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Q5 Mathematics

If the cost price of an article is ₹5,340, then what should be the selling price of the article so that there is a profit of 5%?

A. ₹5,840

B. ₹6,795

C. ₹5,607 ✓

D. ₹6,300

Q6 Mathematics

The value of $\left\{\frac{3}{5} \times [3 + \{3 + (11 + 5 + 6)\}]\right\}$ is:

A. $16\frac{4}{5}$ ✓

B. $10\frac{2}{5}$

C. $11\frac{4}{5}$

D. $12\frac{6}{5}$

Q7 Mathematics

The square root of 182.25 is:

A. 9.25

B. 12.5

C. 11.25

D. 13.5 ✓

Q8 Mathematics

The value of $\frac{(56+34)^2-(56-34)^2}{4\times56\times34}$ is:

A. 1 ✓

B. 2

C. 3

D. 0

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Q9 Mathematics

Three prime numbers are arranged in descending order. If the product of the first two is 323 and that of the last two is 221, then what is the value of the biggest prime number?

A. 17

B. 19 ✓

C. 13

D. 23

Q10 Mathematics

The distance from the origin to the line $4x + 3y + 6 = 0$ is:

A. $\frac{4}{5}$

B. $\frac{7}{5}$

C. $\frac{3}{5}$

D. $\frac{6}{5}$ ✓

Q11 Mathematics

Find the radius of the circle $x^2 + y^2 + 7x + 4y + 9 = 0$.

A. $\frac{\sqrt{19}}{2}$

B. $\frac{\sqrt{23}}{2}$

C. $\frac{\sqrt{13}}{2}$

D. $\frac{\sqrt{29}}{2}$ ✓

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Q12 Mathematics

If A exceeds B by 25 % and B is less than C by 30%, then the ratio of A and C is:

A. $4 : 5$

B. $7 : 8$ ✓

C. $3 : 2$

D. $8 : 7$

Q13 Mathematics

In tossing three coins at a time, the probability of getting at least one heads is:

A. $\frac{7}{8}$ ✓

B. $\frac{3}{8}$

C. $\frac{1}{2}$

D. $\frac{1}{8}$

Q14 Mathematics

If the perimeter of a square is 160 cm. What is the diagonal of the square (in cm)?

A. $40\sqrt{2}$ cm ✓

B. $80\sqrt{2}$ cm

C. $60\sqrt{2}$ cm

D. $20\sqrt{2}$ cm

Q15 Mathematics

The four sides of a quadrilateral are in the ratio of 4 : 5 : 6 : 7 and its perimeter is 176 cm. Find the length of its longest side.

A. 65 cm

B. 57 cm

C. 75 cm

D. 56 cm ✓

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Q16 Mathematics

The sum of two numbers is 434 and their H.C.F is 31. How many pairs of numbers can satisfy the above conditions?

A. 5

B. 4

C. 6

D. 3 ✓

Q17 Mathematics

The value of $27 \times 4.15 + 30.8 \div 22$ is:

A. 110.25

B. 126.05

C. 149.85

D. 113.45 ✓

Q18 Mathematics

If $x^4 + \frac{1}{x^4} = 322$ and $x > 1$, then what is the value of $x - \frac{1}{x}$?

A. 4 ✓

B. 3

C. 6

D. 5

Q19 Mathematics

The value of $\sin 60^\circ \cos 60^\circ$ is equal to:

A. $\frac{\sqrt{3}}{4}$ ✓

B. $\frac{3}{\sqrt{2}}$

C. $\frac{1}{2}$

D. $\frac{\sqrt{3}}{2}$

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Q20 Mathematics

The product of two positive numbers is 0.60. If one number is $\frac{1}{15}$ th of the other, then what are the two numbers?

A. 0.3, 2.0

B. 0.6, 1.0

C. 0.2, 3.0 ✓

D. 0.4, 1.5

Q21 Mathematics

If two litres of water is evaporated from a 5 litre solution containing 3% salt, then what is the percentage of salt in the remaining solution?

A. 6%

B. 2%

C. 5% ✓

D. 3%

Q22 Mathematics

एक व्यक्ति 32 km की दूरी तय करता है। 1 घंटे 20 मिनट के बाद उसने देखा कि उसके द्वारा तय की गई दूरी, शेष दूरी के $\frac{5}{7}$ के बराबर है। उसकी चाल km/hr में कितनी थी?

A. 12 km/hr

B. 10 km/hr ✓

C. 16 km/hr

D. 24 km/hr

Q23 Mathematics

15 men can do a piece of work in 30 days. How many days would 9 men need to complete the work?

A. 35

B. 70

C. 65

D. 50 ✓

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Q24 Mathematics

Find the simple interest for an amount of ₹2,500 at $8\frac{1}{4}\%$ per annum for the period from 1^{st} March 2018 to 12^{th} May 2018.

A. ₹32.25

B. ₹41.25 ✓

C. ₹38.25

D. ₹23.25

Q25 Mathematics

A sum of ₹480 amounts to ₹600 in 5 years at simple interest. If the interest rate was 2% higher, by how much would the interest amount increase?

A. ₹85

B. ₹48 ✓

C. ₹64

D. ₹50

Q26 Mathematics

The measure of the greatest length which can measure 24 m, 32 m and 42 m completely is:

A. 8 m

B. 4 m

C. 5 m

D. 2 m ✓

Q27 Mathematics

A card is drawn at random from a pack of playing cards. What is the probability of getting a face card?

A. $\frac{1}{13}$

B. $\frac{4}{13}$

C. $\frac{5}{13}$

D. $\frac{3}{13}$ ✓

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Q28 Mathematics

If $2a = 3b = 4c$ and $a + b + c = 13\sqrt{2}$, then $a^2 + b^2 + c^2$ is:

A. 72

B. 104

C. 122 ✓

D. 68

Q29 Mathematics

To complete a given task, Imran takes 11 days, Tahir takes 15 days and Amla takes 13 days. Working together they finish the task and get ₹2,012. What will be the share of Imran provided the daily wage is the same for all?

A. ₹580

B. ₹680

C. ₹780 ✓

D. ₹880

Q30 Mathematics

A retailer buys 20 pens at the marked price of 15 pens from a wholesaler. If he sells these 20 pens giving a discount of 1%, then what is the profit percent of the retailer?

A. 35%

B. 25%

C. 30%

D. 32% ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

By how much is $\frac{2}{3}$ of 3000 more than $\frac{2}{5}$ of 1500?

A. 1500

B. 1400 ✓

C. 1000

D. 2000

Q2 Mathematics

Find the L.C.M. of $\frac{4}{5}$, $\frac{3}{8}$ and $\frac{9}{8}$.

A. 28

B. 8

C. 36 ✓

D. 9

Q3 Mathematics

Ram eats 7 bananas in the morning, 8 in the afternoon and 3 in the evening. How many dozens of bananas does he eat in a day?

A. $\frac{2}{3}$

B. $\frac{2}{15}$

C. $\frac{3}{2}$ ✓

D. $\frac{8}{15}$

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Q4 Mathematics

Find the value of $(22+8\sqrt{6})^{\frac{1}{2}}$.

A. $8+2\sqrt{6}$

B. $4-\sqrt{6}$

C. $4+\sqrt{6}$ ✓

D. $16+2\sqrt{6}$

Q5 Mathematics

If $\theta = 60°$, then the value of $\frac{2\cot^2\theta}{1-\cot^2\theta} = ?$

A. 1 ✓

B. $\sqrt{3}$

C. 2

D. $\frac{1}{\sqrt{3}}$

Q6 Mathematics

Find the arithmetic mean of 36, 53, 50, 43, 57, 50, 40, 35, 39 and 34.

A. 52.4

B. 43.7 ✓

C. 43

D. 50

Q7 Mathematics

What is the ratio of the L.C.M. and H.C.F. of the numbers 56 and 84?

A. 6 : 1 ✓

B. 7 : 2

C. 3 : 2

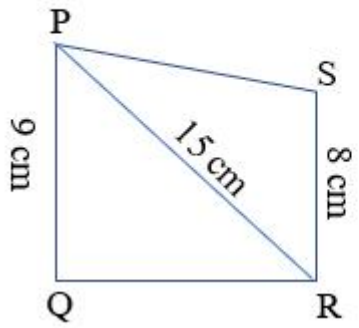
D. 2 : 3

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Q8 Mathematics

Observe the figure below and find the area of trapezium PQRS.



A. $119\ cm^2$

B. $108\ cm^2$

C. $114\ cm^2$

D. $102\ cm^2$ ✓

Q9 Mathematics

Find the smallest number that should be added to 166, so that the sum leaves a remainder of 3 on dividing by each of 4, 6, 9 and 15.

A. 13

B. 16

C. 17 ✓

D. 163

Q10 Mathematics

If Ramu, Rohit and Shyam together can finish a piece of work in 8 days, Ramu alone can complete this work in 16 days and Rohit in 24 days, then Shyam alone can finish this work in how many days?

A. 24

B. 16

C. 32

D. 48 ✓

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Q11 Mathematics

If $\sqrt{625} \div \sqrt{x} = \frac{1}{5}$, then x = ?

A. 1225

B. 3125

C. 15625 ✓

D. 125

Q12 Mathematics

The volume of a cylinder is 5500 cm^3. If its curved surface area is 4400 sq.cm, then find its height.

A. 480 cm

B. 280 cm ✓

C. 180 cm

D. 380 cm

Q13 Mathematics

Find the area of the curved surface of a cone of radius 7 cm and slant height 25 cm.

A. 450 cm^2

B. 225 cm^2

C. 500 cm^2

D. 550 cm^2 ✓

Q14 Mathematics

The railway platform at Delhi station is 238 meters long. In how many seconds is it cleared by an express train which is 162 m long and travels at a speed of 120 km an hour?

A. 16 seconds

B. 10 seconds

C. 14 seconds

D. 12 seconds ✓

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Q15 Mathematics

If $\frac{1}{25} : \frac{1}{x} = \frac{1}{x} : \frac{1}{625}$, then the value of x is _____.

A. 125 ✓

B. 25

C. 625

D. 1.25

Q16 Mathematics

Find the median of 7, 14, 13, 12, 20, 11, 15 and 8.

A. 11

B. 11.5

C. 12.5 ✓

D. 12

Q17 Mathematics

A shopkeeper sold some articles at ₹77/- each and earned a profit of 40%. What would be the selling price of each article if the profit is 6%?

A. ₹62.50

B. ₹59.75

C. ₹58.30 ✓

D. ₹60.40

Q18 Mathematics

What is the principal amount which earns ₹154/- as a compound interest for the second year at 10% per annum?

A. ₹1,400.00 ✓

B. ₹1,540.00

C. ₹1,200.00

D. ₹2,750.50

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Q19 Mathematics

If four women and 7 girls can complete a piece of work in 58 days, then how much time will 12 women and 8 girls take to complete the same work?

A. 14 days

B. 7 days

C. $26\frac{1}{3}$ days

D. 29 days

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q20 Mathematics

The mean of 11 numbers is 44. If the mean of the first 6 numbers is 39 and that of the last 6 numbers is 48, then what is the 6^{th} number?

A. 32

B. 38 ✓

C. 36

D. 34

Q21 Mathematics

A and B entered into a partnership investing ₹20,000/- and ₹16,000/-, respectively. After 3 months, C joined them with an investment of ₹15,000/-. What is B's share (in ₹) if the half yearly profit is ₹4,350/-?

A. ₹1,760

B. ₹1,600 ✓

C. ₹1,850

D. ₹2,000

Q22 Mathematics

Ram invested ₹42,000/- in the shares of a company. He sold one-third of the total shares at a profit of 10%. He sold the remaining shares at 10% loss. How much did Ram lose?

A. ₹4,000

B. ₹4,200

C. ₹5,200

D. ₹1,400 ✓

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Q23 Mathematics

For $x > 0$ find the value of

$$\left(1+\frac{1}{x+1}\right)\left(1+\frac{1}{x+2}\right)\left(1+\frac{1}{x+3}\right)\left(1+\frac{1}{x+4}\right).$$

A. $\left(1+\frac{1}{x+5}\right)$

B. $\frac{1}{x+5}$

C. $\frac{x+5}{x+1}$ ✓

D. $\frac{x+1}{x+5}$

Q24 Mathematics

If $\sqrt{484\sqrt{25 \div x}} = 22$, then $x =$ _____.

A. 75

B. 25 ✓

C. 50

D. 100

Q25 Mathematics

The expression $(21.98 \times 21.98 + 21.98x + 0.04 \times 0.04)$ will be a perfect square if x=?

A. 0.20

B. 0.08 ✓

C. 0.40

D. 0.02

Q26 Mathematics

A sum of ₹25,000/- amounts to ₹31,500/- in 4 years at a certain rate of simple interest. What is the rate of interest?

A. 5.5%

B. 3.5%

C. 6.5% ✓

D. 4.5%

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Q27 Mathematics

Find the compound interest on ₹20,000/- in 2 years at 8% per annum, if interest is compounded yearly.

A. ₹3,328.00 ✓

B. ₹3,220.00

C. ₹3,109.78

D. ₹3,200.00

Q28 Mathematics

Find the difference between the place values of 8 and 4 in the number 683479.

A. 79600 ✓

B. 80000

C. 7

D. 76600

Q29 Mathematics

If $(a+b+c)=6, a^2+b^2+c^2=2$, then $ab+bc+ca=?$

A. 4

B. 36

C. 17 ✓

D. 34

Q30 Mathematics

Find the value of $\frac{119.5^2-116.4^2}{(119.5-116.4)}$.

A. 217.9

B. 235.1

C. 3.1

D. 235.9 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A invests two equal amounts in two banks giving rates of simple interest as10% per annum and 12% per annum respectively. At the end of the year, the interest earned is ₹1,650/-. The amount invested in each bank is:

A. ₹15,000/-

B. ₹750/-

C. ₹7,500/- ✓

D. ₹1,650/-

Q2 Mathematics

The greatest number of three digits which is exactly divisible by 3, 4, 5 and 8 is:

A. 980

B. 120

C. 960 ✓

D. 900

Q3 Mathematics

The difference between the place values of 2 and 4 in the number 275413 is:

A. 2

B. 199600 ✓

C. 196600

D. –2

Q4 Mathematics

Babu purchased a car for ₹3,00,000/- and a bike for his son for ₹1,00,000/-. He sold the car at a profit of 10% and bike at a loss of 20%. What is the net gain or loss?

A. 2.5% loss

B. 2.5% gain ✓

C. 1.5% loss

D. 2% gain

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Q5 Mathematics

X, Y and Z together earn ₹2,400/- in 15 days. X and Y together earn ₹1,840/- in 16 days. Y and Z together earn ₹1,530/- in 18 days. What is the daily earning (in ₹) of Y?

A. 40 ✓

B. 30

C. 50

D. 60

Q6 Mathematics

If Raju is thrice as good workman as Ravi and takes 20 days less than him to complete a piece of work, then find the time taken by Ravi to complete the work.

A. 20 days

B. 30 days ✓

C. 10 days

D. 40 days

Q7 Mathematics

If $\frac{0.008}{x} = 0.01$, then $x = ?$

A. 0.0008

B. 0.8 ✓

C. 0.08

D. 8

Q8 Mathematics

If $(\sqrt{2} + 1)^3 = a + b\sqrt{2}$, then the correct relation between a and b is

A. $a + b = 1$

B. $a = b + 1$

C. $a - b = 2$ ✓

D. $a^2 + b = 0$

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Q9 Mathematics

The interior angle of a regular polygon is 108°. The number of the sides of the polygon is:

A. 15

B. 108

C. 5 ✓

D. 360

Q10 Mathematics

If $\cos x - 3\sin x = \sqrt{5}\ \sin x$, then the value of $\tan x$ is:

A. $\frac{3 - \sqrt{5}}{4}$ ✓

B. $\frac{3 + \sqrt{5}}{4}$

C. $\frac{3 - \sqrt{5}}{6}$

D. $3 - \sqrt{5}$

Q11 Mathematics

Solve the given equation.

$\sqrt{(544)^2 - (256)^2} = ?$

A. 480 ✓

B. 144

C. 288

D. 400

Q12 Mathematics

The HCF of two numbers is 4 and their product is 48. Find the numbers.

A. 4, 8

B. 4, 12 ✓

C. 4, 24

D. 12, 16

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Q13 Mathematics

Find the median of 45, 76, 32, 58, 16, 27, 64 and 35.

A. 35

B. 40 ✓

C. 45

D. 42

Q14 Mathematics

Solve the given equation.

$2 - [2 - \{2 - 2(2 + 2)\}] = ?$

A. 4

B. –6 ✓

C. –4

D. 6

Q15 Mathematics

The least number that should be added to 1549 so that the sum is exactly divisible by 2, 3, 5 and 7 is:

A. 79

B. 210

C. 131 ✓

D. 1339

Q16 Mathematics

The volume of a hemisphere is 19404 cm^3. Its radius is: (Use $\pi = \frac{22}{7}$)

A. 19 cm

B. 20 cm

C. 21 cm ✓

D. 30 cm

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Q17 Mathematics

Select the number that can replace the question mark (?) in the following equation.

$47^{7.5} \div 47^{\frac{3}{2}} \times 47^{-3} = (\sqrt{47})^{?}$

A. 6 ✓

B. 4

C. 5

D. $2\frac{1}{2}$

Q18 Mathematics

If length of each side of a cube is doubled, then its volume _____ the original volume.

A. is doubled

B. becomes 9 times

C. becomes 8 times ✓

D. becomes 6 times

Q19 Mathematics

The value of $\sqrt{142884}$ is:

A. 358

B. 388

C. 368

D. 378 ✓

Q20 Mathematics

Two persons A and B are travelling towards each other at the speeds of 10 km/h and 14 km/h. The distance between them is 24 km. Find the time taken by them to meet each other.

A. 3 h

B. 2 h

C. 1 h ✓

D. 2.5 h

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Q21 Mathematics

40% of the goods are sold at 2% loss while the rest of the goods are sold at 4% profit. If there is a total profit of ₹250, then the cost price of goods sold is:

A. ₹15,625/- ✓

B. ₹9,000/-

C. ₹5,625/-

D. ₹6,525/-

Q22 Mathematics

The mean of 20 observations is 50. It was later found that two observations 13 and 24 were incorrectly recorded as 31 and 42. The correct mean is:

A. 51.85

B. 47.25

C. 50

D. 48.20 ✓

Q23 Mathematics

If A lies in the second quadrant and $13sinA - 12 = 0$, then $5sinA + 12cosA + tan^2A - (sec^2A - 1) = ?$

A. 0 ✓

B. $\frac{48}{5}$

C. $\frac{24}{5}$

D. $-\frac{24}{5}$

Q24 Mathematics

The product of two numbers is 64 and their sum is 20. If the first number is greater than the second, then the ratio of the two numbers is:

A. 5 : 16

B. 16 : 5

C. 4 : 1 ✓

D. 1 : 4

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Q25 Mathematics

If $5A - 2B = 0$ and $4B - 5C = 0$, then $C : A = ?$

A. $4 : 6$

B. $2 : 1$ ✓

C. $6 : 4$

D. $1 : 2$

Q26 Mathematics

In an examination, 90% of students passed and 260 students failed. The total number of the students is:

A. 2600 ✓

B. 1500

C. 3700

D. 500

Q27 Mathematics

The value of $\sqrt{\frac{1-\cos 300^\circ}{2}}$ is:

A. $\frac{1}{2}$ ✓

B. $\sqrt{2}$

C. $\frac{1}{\sqrt{2}}$

D. 2

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Q28 Mathematics

Which is the descending order in the following fractions?

A. $\frac{6}{7}, \frac{5}{6}, \frac{11}{13}, \frac{16}{17}$

B. $\frac{16}{17}, \frac{6}{7}, \frac{11}{13}, \frac{5}{6}$ ✓

C. $\frac{5}{6}, \frac{6}{7}, \frac{11}{13}, \frac{16}{17}$

D. $\frac{11}{13}, \frac{16}{17}, \frac{6}{7}, \frac{5}{6}$

Q29 Mathematics

A principal amount of ₹6,000/- borrowed for compound interest is raised to ₹7,986 in 3 years. What is the rate of interest?

A. 7.5%

B. 6%

C. 10% ✓

D. 20%

Q30 Mathematics

If $x : y = 2 : 3$, then $(4x + 3y) : (2x + 5y) = ?$

A. 13 : 11

B. 17 : 19 ✓

C. 11 : 13

D. 19 : 17

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The difference between a 16% profit and a 12% loss while selling an article is ₹70. What is the cost price of the article?

A. ₹235

B. ₹250 ✓

C. ₹225

D. ₹240

Q2 Mathematics

Ramu can reach a certain place in 30 hours. If he reduces his speed by $\frac{1}{15}$th, he goes 10 km less in that time. Find his speed.

A. $5\frac{1}{2}$ km/h

B. 6 km/h

C. 5 km/h ✓

D. 4 km/h

Q3 Mathematics

Find the mean of the following data.

8, –2, 9, 6, 13, 17, 12

A. 12

B. 11

C. 10

D. 9 ✓

Q4 Mathematics

ABCD is a parallelogram in which $\angle A = x + 20°$ and $\angle C = 3x - 10°$. The value of x is _____

A. 40°

B. 15° ✓

C. 30°

D. 60°

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Q5 Mathematics

Convert $\frac{8}{9}$ into a decimal number.

A. 0.85

B. 0.77

C. 0.91

D. 0.88 ✓

Q6 Mathematics

What percentage of a day is 3 h?

A. $16\frac{1}{2}\%$

B. $12\frac{1}{2}\%$ ✓

C. $10\frac{1}{2}\%$

D. $14\frac{1}{2}\%$

Q7 Mathematics

The sum of the angles of a quadrilateral is _____.

A. 270°

B. 360° ✓

C. 90°

D. 180°

Q8 Mathematics

Suhas can cover the distance between point A and point B in 7 hours, if he travels at an average speed of 104 km/h. He travelled for the first four hours at an average speed of 118 km/h. What should be his average speed for the rest of the journey if he wants to reach his destination in a total time of 8 hours from the start of the journey?

A. 70 km/h

B. 64 km/h ✓

C. 72 km/h

D. 60 km/h

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Q9 Mathematics

If $\sin\theta = \frac{4}{5}$ and θ is NOT in the first quadrant, then find the value of $\cos\theta$.

A. $\frac{-4}{5}$

B. $\frac{3}{5}$

C. $\frac{-3}{5}$ ✓

D. $\frac{4}{5}$

Q10 Mathematics

If 10% of x = 15% of y, then what will be the value of $x : y$?

A. 2 : 1

B. 2 : 3

C. 1 : 2

D. 3 : 2 ✓

Q11 Mathematics

The product of the first six even numbers is:

A. 46080 ✓

B. 46060

C. 46020

D. 46800

Q12 Mathematics

The ratio of the age of Naresh to that of Suresh is 6 : 5 and the sum of their ages is 44 years. The ratio of their respective ages after 15 years will be:

A. 39 : 34

B. 30 : 35

C. 39 : 35 ✓

D. 34 : 39

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Q13 Mathematics

If the cost price of 12 pens is equal to the selling price of 8 pens, the percentage gain is:

A. 30%

B. 50% ✓

C. 40%

D. 20%

Q14 Mathematics

A fruit seller has some oranges. He sells 60% of them and still has 380 oranges. Originally, he had _____ oranges.

A. 930

B. 940

C. 920

D. 950 ✓

Q15 Mathematics

What decimal of an hour is a second?

A. 0.027

B. 0.0027

C. 0.00027 ✓

D. 0.27

Q16 Mathematics

HCF of $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}$ is:

A. $\frac{1}{60}$ ✓

B. $\frac{4}{5}$

C. 12

D. 1

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Q17 Mathematics

If $\sin x - 5\cos x = 2\sqrt{6}\ \cos x$, then the value of $\cot x$ is:

A. $5 + 2\sqrt{6}$

B. 1

C. $2\sqrt{6}$

D. $5 - 2\sqrt{6}$ ✓

Q18 Mathematics

Which of the following fractions are in ascending order?

A. $\frac{12}{18}, \frac{16}{19}, \frac{14}{17}$

B. $\frac{14}{17}, \frac{12}{18}, \frac{16}{19}$

C. $\frac{16}{19}, \frac{14}{17}, \frac{12}{18}$

D. $\frac{12}{18}, \frac{14}{17}, \frac{16}{19}$ ✓

Q19 Mathematics

Qamar sold 18 toys for ₹980, thereby making a loss equal to the cost price of 4 toys. What was the cost price of each toy?

A. ₹70 ✓

B. ₹75

C. ₹80

D. ₹60

Q20 Mathematics

Solve the following

$\sqrt[3]{\sqrt{0.000064}} = ?$

A. 0.2 ✓

B. 0.002

C. 0.02

D. 2.0

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Q21 Mathematics

If $\frac{a}{3} = \frac{b}{4} = \frac{c}{7}$, then $\frac{a+b+c}{c}$ is equal to:

A. 3

B. 2 ✓

C. 1

D. 4

Q22 Mathematics

Simplify the following.

$$\frac{2}{5} \times [2 + \{3 + (12 + 4 + 3)\}]$$

A. $9\frac{3}{4}$

B. $9\frac{3}{2}$

C. $9\frac{3}{5}$ ✓

D. $9\frac{3}{6}$

Q23 Mathematics

Simplify the following.

$$5\frac{3}{9} \div 3\frac{1}{4} \times 7\frac{5}{16} + \frac{7}{8} \times 16$$

A. 29

B. 30

C. 26 ✓

D. 28

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Q24 Mathematics

If $\sqrt{7} = 2.6$, then the value of $\frac{5\sqrt{7}}{4\sqrt{7} - 0.4}$ is:

A. 1.2

B. 1.5

C. 1.3 ✓

D. 1.1

Q25 Mathematics

The perimeter of a rectangle is 100 m and its length is 29 m. Find its width.

A. 42 m

B. 48 m

C. 21 m ✓

D. 69 m

Q26 Mathematics

Ramu and Somu together can complete a task in 10 days. Somu and Dhamu together can complete it in 12 days. Dhamu and Ramu together can complete it in 15 days. If Ramu, Somu and Dhamu work together, in how many days will they complete the task?

A. 9

B. 8 ✓

C. 6

D. 7

Q27 Mathematics

Find the value of the following.

$4.6 \times 13.5 + 5.4 \times 13.5$

A. 133

B. 134

C. 135 ✓

D. 132

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Q28 Mathematics

What is the domain of sine function?

A. W

B. Z

C. N

D. R ✓

Q29 Mathematics

Given that $a = \sqrt{4}$, find the value of the following.

$\sqrt{9} + 25a + \sqrt{64}$

A. 41

B. 51

C. 61 ✓

D. 31

Q30 Mathematics

If the angle of a sector in a pie diagram is 135°, then it is equivalent to ____ of the pie diagram.

A. $\frac{3}{4}$

B. $\frac{1}{8}$

C. $\frac{1}{4}$

D. $\frac{3}{8}$ ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the value of $\sin 420^\circ$

A. $\frac{3}{\sqrt{2}}$

B. $\frac{\sqrt{3}}{2}$ ✓

C. $\frac{2}{\sqrt{3}}$

D. $\frac{1}{\sqrt{3}}$

Q2 Mathematics

A man purchased a fan which had a printed price of ₹200. If he received two successive discounts of 30% and 20%, then how much did he pay for the fan?

A. ₹115

B. ₹108

C. ₹112 ✓

D. ₹90

Q3 Mathematics

What should be added to 21.707 to get 29.053?

A. 7.676

B. 7.576

C. 7.346 ✓

D. 7.466

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Q4 Mathematics

The ratio of two numbers is 3 : 4 and their L.C.M is 180. What is the larger of the two numbers?

A. 15

B. 20

C. 60 ✓

D. 45

Q5 Mathematics

All trigonometric functions are periodic. What is the period of $\cos x$?

A. π

B. $\frac{\pi}{2}$

C. 2π ✓

D. $\frac{\pi}{3}$

Q6 Mathematics

The ratio of two numbers is 5 : 3 and their sum is 560. Find the value of the smaller of the two numbers.

A. 200

B. 230

C. 221

D. 210 ✓

Q7 Mathematics

Simplify the following.

$$1+\frac{3}{7}\times[6+8\times(3-2)]+\left\{\left\langle\frac{1}{5}\div\frac{7}{25}\right\rangle-\left\langle\frac{3}{7}+\frac{4}{14}\right\rangle\right\}$$

A. 7 ✓

B. 6

C. 4

D. 5

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Q8 Mathematics

x% of 12.8 = 38.4. Find the value of x.

A. 0.3

B. 300 ✓

C. 305

D. 3

Q9 Mathematics

A is twice as fast as B and B is thrice as fast as C. The journey covered by C in 54 minutes will be covered by A in how many minutes?

A. 30 min

B. 27 min

C. 18 min

D. 9 min ✓

Q10 Mathematics

Find the value of

$$18-\left[6\div 3\times\left\{8-\left(10\times\frac{1}{2}\right)\right\}\right].$$

A. 8

B. 12 ✓

C. 10

D. 6

Q11 Mathematics

If $0.75 : x :: 5 : 8$, then x is equal to:

A. 2.21

B. 1.20 ✓

C. 1.21

D. 2.20

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Q12 Mathematics

What is the compound interest on ₹2,800 for $1\frac{1}{2}$ years at 10% per annum compounded half-yearly?

A. ₹434.00

B. ₹441.35 ✓

C. ₹420.00

D. ₹436.75

Q13 Mathematics

Giri can complete a piece of work in 6 days. With the help of her friend, she can complete it in 4 days. In how many days can her friend complete the work alone?

A. 12 ✓

B. 14

C. 10

D. 16

Q14 Mathematics

Find the value of 860% of 50 ÷ 50% of 860.

A. 25

B. 1 ✓

C. 0

D. 17.2

Q15 Mathematics

After deducting a commission of 10% on the marked price, a T.V. set costs ₹9,090. What is its marked price?

A. ₹10,010.00

B. ₹10,000.00

C. ₹10,074.75

D. ₹10,100.00 ✓

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Q16 Mathematics

The H.C.F of three numbers is 15. If they are in the ratio 1 : 2 : 3, then find the numbers.

A. 30, 35, 45

B. 15, 20, 25

C. 15, 30, 45 ✓

D. 15, 25, 35

Q17 Mathematics

Kishore plans to tile his kitchen floor with square tiles. Each side of the tile is 10 cm. The kitchen is 2.4 m long and 1.6 m wide. How many tiles will Kishore need?

A. 383

B. 385

C. 384 ✓

D. 382

Q18 Mathematics

Simplify:

$0.077 \div 7 - 0.005 \div 5$

A. 0.01 ✓

B. 0.001

C. 0.0001

D. 0.00001

Q19 Mathematics

$\sqrt{176+\sqrt{2401}}$ is equal to:

A. 17

B. 21

C. 19

D. 15 ✓

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Q20 Mathematics

2 chairs and 1 table cost ₹880, while 1 chair and 2 tables cost ₹980. Find the cost of each.

A. ₹280 and ₹380

B. ₹185 and ₹285

C. ₹260 and ₹360 ✓

D. ₹195 and ₹295

Q21 Mathematics

If $\sqrt{5^n} = 5$, then n = ?

A. 4

B. 5

C. 2 ✓

D. 3

Q22 Mathematics

Raju is standing away from Karthik at a distance of 300 m. Raju starts running and Karthik chases him. Raju and Karthik run at the rate of 10 km and 12 km per hour respectively. What is the distance between them after 6 minutes?

A. 100 m ✓

B. 150 m

C. 200 m

D. 50 m

Q23 Mathematics

Find the value of $\sin(\frac{5\pi}{3})$.

A. $\frac{\sqrt{3}}{2}$

B. $\frac{1}{2}$

C. $\frac{-\sqrt{3}}{2}$ ✓

D. $\frac{1}{\sqrt{2}}$

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Q24 Mathematics

A frequency polygon is drawn using _____.

A. upper boundaries of classes less than cumulative frequencies

B. end point of classes and frequencies

C. midpoint of classes and frequencies ✓

D. lower boundaries of classes greater than cumulative frequencies

Q25 Mathematics

If each element of a matrix is zero, then the matrix is:

A. identity

B. scalar

C. square

D. null ✓

Q26 Mathematics

Find the median of the following values.

5, 10, 3, 7, 2, 9, 6, 2 and 11

A. 6 ✓

B. 7

C. 4

D. 5

Q27 Mathematics

Two intersecting circles are said to be orthogonal if the angle between them is a/an _____.

A. straight angle

B. acute angle

C. obtuse angle

D. right angle ✓

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Q28 Mathematics

If $x = \frac{\sqrt{9}+1}{\sqrt{9}-1}$ and $y = \frac{\sqrt{16}+1}{\sqrt{16}-1}$, then the value of $\langle x^2 - y^2 \rangle$ is:

A. $\frac{11}{9}$ ✓

B. $\frac{6}{5}$

C. $\frac{7}{6}$

D. $\frac{9}{8}$

Q29 Mathematics

In Δ ABC $\overline{PQ} \parallel \overline{AB}$. P and Q are on BC and CA respectively. If CQ : QA = 1 : 3 and CP = 4, then what is the value of BC?

A. 16 ✓

B. 12

C. 8

D. 4

Q30 Mathematics

Simplify the following.

$$\frac{4.2 \times 4.2 - 1.9 \times 1.9}{2.3 \times 6.1}$$

A. 2

B. 1 ✓

C. 4

D. 3

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The least number that when divided by 9, 16, 20 or 24, leaves 3 as remainder in each case is:

A. 725

B. 720

C. 723 ✓

D. 717

Q2 Mathematics

Evaluate:

$\left(3\frac{1}{7}+4\frac{3}{7}\right)+\frac{7}{6}$

A. $\frac{367}{42}$ ✓

B. $\frac{432}{42}$

C. $\frac{267}{42}$

D. $\frac{342}{42}$

Q3 Mathematics

A cyclist covers 650 m distance in 2 min 10 sec. Then the speed of the cyclist in km/hr is:

A. 18 ✓

B. 5

C. 16

D. 12

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Q4 Mathematics

Rama can finish a piece of work in 50 days. He worked 10 days but then stopped. Then Ravi finished the remaining work alone in 32 days. How much time will Rama and Ravi, working together, need to finish the same work?

A. $24\frac{2}{9}$ days

B. $24\frac{1}{9}$ days

C. $22\frac{2}{9}$ days ✓

D. $22\frac{4}{9}$ days

Q5 Mathematics

A box contains 2 black, 6 green and 4 yellow balls. If 2 balls are picked up at random, the probability that both are green-coloured is:

A. $\frac{5}{22}$ ✓

B. $\frac{1}{22}$

C. $\frac{1}{6}$

D. $\frac{3}{11}$

Q6 Mathematics

At what rate of compound interest per annum will a sum of ₹1,000 become ₹1,061 in 2 years?

A. 3% ✓

B. 2%

C. 5%

D. 4%

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Q7 Mathematics

A dice is thrown twice and the sum of the appearing numbers is 10. Then the probability that the number 5 has appeared at least once is:

A. $\frac{1}{4}$

B. $\frac{1}{3}$ ✓

C. $\frac{2}{3}$

D. $\frac{1}{2}$

Q8 Mathematics

The square root of $5\frac{44}{49}$ is:

A. $\frac{12}{7}$

B. $\frac{16}{7}$

C. $\frac{15}{7}$

D. $\frac{17}{7}$ ✓

Q9 Mathematics

If the number 2893#$ is divisible by 8 and 5, then the digits that would come in the place of # and $, respectively, are:

A. 2, 0 ✓

B. 0, 0

C. 2, 2

D. 0, 2

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Q10 Mathematics

Raj is 60% more efficient than Sundar, and Sundar can finish a certain job in 16 days. How many days does Raj alone take to complete the same job?

A. 8 days

B. $7\frac{1}{2}$ days

C. 10 days ✓

D. 12 days

Q11 Mathematics

A profit of 25% is made when an article is sold for ₹750. If the article is sold for ₹660 then the profit percentage is:

A. 12%

B. 10% ✓

C. 8%

D. 15%

Q12 Mathematics

Ravi's salary is 20% more than Mohan's salary. If Mohan's salary is ₹1600, then Ravi's salary is:

A. ₹1,800

B. ₹1,750

C. ₹1,920 ✓

D. ₹1,890

Q13 Mathematics

Evaluate:

$(0.2)^3 - (0.02)^3$

A. 0.001002

B. 0.002992

C. 0.007992 ✓

D. 0.009992

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Q14 Mathematics

The LCM of two numbers is 126 and their HCF is 2. If one number is 18 then the other is:

A. 14 ✓

B. 12

C. 16

D. 9

Q15 Mathematics

A train covers a distance of 35 km in 60 minutes. How long will it take to cover 105 km?

A. 120 min

B. 180 min ✓

C. 140 min

D. 90 min

Q16 Mathematics

Evaluate:

$$18\left[4-3\left\{6-\left(8\times\frac{1}{2}\right)\right\}\right]$$

A. 16

B. −36 ✓

C. 36

D. 20

Q17 Mathematics

If the height of a pole is $6\sqrt{3}$ metre and the length of its shadow is 6 metre, then the angle of elevation of the sun is:

A. 60° ✓

B. 45°

C. 30°

D. 0°

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Q18 Mathematics

Evaluate the positive value of:

$$\sqrt{107+\sqrt{192+\sqrt{11+\sqrt{25}}}}$$

A. 5

B. 14

C. 11 ✓

D. 15

Q19 Mathematics

If $2^x = 4^{y+1}$ and $3^y = 3^{x-9}$, then the values of x and y, respectively, are:

A. 16, 7 ✓

B. -16, 7

C. -16, -7

D. 16, -7

Q20 Mathematics

The simple interest on ₹10,000 for 6 months at the rate of 5 paise per rupee per month is:

A. ₹1,000

B. ₹3,000 ✓

C. ₹2,000

D. ₹1,500

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Q21 Mathematics

Evaluate:

$$\left\{\left(2-\frac{1}{3}\right)+\left(\frac{2}{3}\times 1\frac{1}{5}\right)\right\}+\frac{3}{5}\times 2\frac{5}{7}$$

A. $2\frac{4}{27}$

B. $4\frac{2}{27}$

C. $2\frac{4}{21}$

D. $4\frac{2}{21}$ ✓

Q22 Mathematics

The least square number that is exactly divisible by 4, 5, 8, 16 and 32 is:

A. 1600 ✓

B. 400

C. 3600

D. 900

Q23 Mathematics

In triangle ABC, lengths of sides opposite respective angles are a = 25, b = 45, c = 30, then the value of cos A is:

A. $\frac{20}{27}$

B. $\frac{23}{27}$ ✓

C. $\frac{25}{27}$

D. $\frac{21}{27}$

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Q24 Mathematics

A cylinder has a height of 14 cm and a curved surface area of 660 cm^2, then the volume of the cylinder is:

A. 2425 cm^3

B. 2475 cm^3 ✓

C. 2225 cm^3

D. 2275 cm^3

Q25 Mathematics

The ratio of simple interest earned on a certain amount at the rate of 5% and 8% for 6 years and 3 years respectively is:

A. 5 : 4 ✓

B. 4 : 5

C. 2 : 3

D. 3 : 2

Q26 Mathematics

The diagonal of a cube is $6\sqrt{2}\ cm$. The surface area of the cube is:

A. 144 cm^2 ✓

B. 24 cm^2

C. 36 cm^2

D. 72 cm^2

Q27 Mathematics

The equation of a straight line passing through (-2,5) and (1,3) is:

A. $3x + 2y + 9 = 0$

B. $3x - 2y - 11 = 0$

C. $2x + 3y - 11 = 0$ ✓

D. $2x - 3y - 9 = 0$

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Q28 Mathematics

The value of the variable x in the equation $3(5x+2)-4=2(1-4x)$ is:

A. -1

B. 10

C. 2

D. 0 ✓

Q29 Mathematics

A bought a horse for ₹4,500. He sold it to B at a profit of 5%. B sold it to C at a profit of 20%. Then the cost price of the horse for C is:

A. ₹5240

B. ₹5670 ✓

C. ₹5520

D. ₹5430

Q30 Mathematics

The intercepts made by the plane $3x-4y-2z=6$ with the coordinate axis are:

A. $-2, -\frac{3}{2}, 3$

B. $2, \frac{3}{2}, -3$

C. $-2, \frac{3}{2}, 3$

D. $2, -\frac{3}{2}, -3$ ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The surface area of a sphere whose radius is 21 m is:

A. $1000\ m^2$

B. $11088\ m^2$

C. $1100\ m^2$

D. $5544\ m^2$ ✓

Q2 Mathematics

The radius and height of a cylinder are 28 cm and 40 cm, respectively. Find its volume.

A. $98560\ cm^3$ ✓

B. $689920\ cm^3$

C. $86240\ cm^3$

D. $1760\ cm^3$

Q3 Mathematics

In how many years will a sum of ₹4,000 be increased to ₹4,840 at 10% compound interest per annum?

A. 2 ✓

B. 4

C. 6

D. 1

Q4 Mathematics

By selling a book at ₹125, Ram earns a profit equal to $\frac{2}{5}$ th of the selling price. Find the cost price of the book (in ₹).

A. 100

B. 50

C. 75 ✓

D. 30

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Q5 Mathematics

If ₹825 is divided into three parts in a proportion of $\frac{1}{3} : \frac{4}{9} : \frac{3}{4}$, then the first part will be:

A. ₹204

B. ₹190

C. ₹210

D. ₹180 ✓

Q6 Mathematics

Find the positive value of

$$\sqrt{12 + \sqrt{12 + \sqrt{12 + \ldots}}}$$

A. 2

B. 3

C. 12

D. 4 ✓

Q7 Mathematics

The mean of 22, 35, 15, 75, 66, 50, 52, 36, 70, 86 and 10 is:

A. 51

B. 57

C. 46.5

D. 47 ✓

Q8 Mathematics

The compound interest on ₹20,000 in 2 years at a 4% per year, the interest being compounded half-yearly, will be:

A. ₹1,500

B. ₹1,648.64 ✓

C. ₹1,700

D. ₹1,842.64

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Q9 Mathematics

The HCF of $\frac{7}{16}, \frac{9}{24}$ and $\frac{11}{64}$ is:

A. $\frac{1}{192}$ ✓

B. 1

C. 192

D. 69

Q10 Mathematics

The value of $\frac{tan85^\circ - tan25^\circ}{1+tan85^\circ tan25^\circ}$ is:

A. $\sqrt{3}$ ✓

B. 1

C. 0

D. $\frac{1}{\sqrt{3}}$

Q11 Mathematics

The LCM of $(a^3 + b^3)$ and $(a^4 - b^4)$ is:

A. $(a^3 + b^3)(a^2 + b^2)(a + b)$

B. $(a^3 + b^3)(a^2 - b^2)(a - b)$

C. $(a + b)(a^2 + ab + b^2)$

D. $(a^3 + b^3)(a^2 + b^2)(a - b)$ ✓

Q12 Mathematics

A 100-m-long train passes an electric post in 6 seconds. The speed of the train is:

A. 50 km/h

B. $16\frac{1}{6}$ km/h

C. 60 km/h ✓

D. $60\frac{1}{6}$ km/h

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Q13 Mathematics

The mean of 8 numbers is 37. If one of the number is excluded, the mean gets reduced by 2. The excluded number is:

A. 39

B. 51 ✓

C. 35

D. 41

Q14 Mathematics

Find the least number that on being divided by 5, 6, 8, 9 and 12 leaves 4 as the remainder in each case.

A. 368

B. 360

C. 366

D. 364 ✓

Q15 Mathematics

The difference between the compound interest and the simple interest on a certain amount at a rate of interest of 5% per annum for 2 years is ₹25. Find the amount.

A. ₹7,500

B. ₹8,500

C. ₹10,000 ✓

D. ₹9,000

Q16 Mathematics

Find the smallest whole number whose 60% is more than 6.

A. 10

B. 6

C. 11 ✓

D. 7

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Q17 Mathematics

If 5 men or 9 children can finish a task in 92 days, then how much time will 20 men and 10 children take to finish the same task?

A. 36 days

B. 27 days

C. 18 days ✓

D. 9 days

Q18 Mathematics

The median of 7, 14, 13, 12, 20, 11, 15 and 8 is:

A. 11

B. 11.5

C. 12.5 ✓

D. 12

Q19 Mathematics

The product of 0.27 and 3.54 is less than 5.743 by how much?

A. 4.7872 ✓

B. 0.7558

C. 5.742

D. 3.89

Q20 Mathematics

A sum fetched a total simple interest of ₹4,500 at the rate of 9% per annum in 5 years. What was the sum?

A. ₹8,900

B. ₹9,000

C. ₹9,500

D. ₹10,000 ✓

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Q21 Mathematics

ABC is a right-angled triangle, right angled at C. If $A = 60°$ and $AC = 20\sqrt{3}$ units, then find AB.

A. 40 units

B. $\sqrt{3}$ units

C. $20\sqrt{3}$ units

D. $40\sqrt{3}$ units ✓

Q22 Mathematics

If the length of the diagonals of a rhombus are 32 cm and 24 cm, then the length of each side of the rhombus will be:

A. 40 cm

B. 10 cm

C. 20 cm ✓

D. 30 cm

Q23 Mathematics

Solve the following.

$$\frac{(28.4)^2-(24.4)^2}{(28.4-24.4)} = ?$$

A. 4

B. 8

C. 52.8 ✓

D. 52

Q24 Mathematics

Solve the following.

$$\frac{7}{77} \times 7777077 = ?$$

A. 7007007

B. 707007 ✓

C. 707070

D. 707077

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Q25 Mathematics

X and Y together can finish a task in 3 days, Y and Z together in 6 days, and X and Z together in 9 days. If all work together then the task will be finished in _____.

A. $\frac{11}{36}$ days

B. $\frac{1}{18}$ days

C. 18 days

D. $\frac{36}{11}$ days ✓

Q26 Mathematics

Find the greatest number of three digits which is exactly divisible by 6, 8, 10 and 16.

A. 720

B. 480

C. 960 ✓

D. 240

Q27 Mathematics

A and B entered into a partnership investing ₹20,000 and ₹16,000, respectively. After 3 months, C joined them with an investment of ₹15,000. What will be B's share in a half yearly profit of ₹4,100?

A. ₹2,000

B. ₹5,000

C. ₹1,600

D. ₹4,200

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q28 Mathematics

If $x + \frac{1}{x} = 26$, then the value of $x^2 + \frac{1}{x^2} = ?$

A. 2

B. 674 ✓

C. 24

D. 676

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Q29 Mathematics

The difference between the place value of 8 and 6 in the number 786392 is:

A. 7400

B. 74000 ✓

C. 6000

D. 8000

Q30 Mathematics

By selling an article for ₹1,600, a person lost 20%. For what amount should he sell it to make a profit of 20%?

A. ₹3,600

B. ₹4,000

C. ₹2,400 ✓

D. ₹1,200

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

In how many years will a sum of money double itself at 6.25% per annum simple interest?

A. 16 ✓

B. 12

C. 15

D. 19

Q2 Mathematics

If $x = 2 + \sqrt{5}$, then the value of $\left(x - \frac{1}{x}\right)^3$ is:

A. 125

B. $2\sqrt{5}$

C. 8

D. 64 ✓

Q3 Mathematics

Two cards are drawn from a pack of 52 cards. The probability that out of 2 cards, one card is red and one card is black is:

A. $\frac{25}{51}$

B. $\frac{13}{25}$

C. $\frac{26}{51}$ ✓

D. $\frac{1}{2}$

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Q4 Mathematics

If the distance between two points $(x, 7)$ and $(1, 15)$ is 10 units, then the possible values of x = ?

A. 7, -5 ✓

B. 5, -7

C. 4, 5

D. 3, 7

Q5 Mathematics

Two numbers are in the ratio of 5 : 4 and their LCM is 120. The numbers are:

A. 10 and 8

B. 40 and 32

C. 15 and 12

D. 30 and 24 ✓

Q6 Mathematics

Ramu borrows ₹64,000 at 25% per annum compound interest. At the end of every year he pays ₹3,200 as part of repayment. How much does he still owe after 3 such instalments?

A. ₹12,500

B. ₹1,12,800 ✓

C. ₹12,800

D. ₹1,12,500

Q7 Mathematics

If $3\cot\theta = \tan\theta$ then principal value of θ is

A. $\frac{\pi}{3}$ ✓

B. $\frac{\pi}{2}$

C. $\frac{\pi}{6}$

D. $\frac{\pi}{4}$

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Q8 Mathematics

The circumference of a circle is equal to the perimeter of an equilateral triangle. If the radius of the circle is 21 cm, what is the length of the side of the equilateral triangle?

A. 22 cm

B. 55 cm

C. 33 cm

D. 44 cm ✓

Q9 Mathematics

If $\sqrt{1+\frac{x}{121}}=\frac{12}{11}$, then the value of x is;

A. 23 ✓

B. 48

C. 75

D. 26

Q10 Mathematics

The value of $42.425 + 6.526 - 15.31 + 0.098$ is:

A. 33.786

B. 33.739 ✓

C. 33.483

D. 33.836

Q11 Mathematics

Find the equation of the straight line passing through the points (0, 2) and (1, –3).

A. $2x - 3y - 3 = 0$

B. $5x + y - 2 = 0$ ✓

C. $5x + y + 2 = 0$

D. $2x + 3y + 3 = 0$

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Q12 Mathematics

The value of

$12 + \left[\left(25 \div \frac{1}{5}\right) - (14 \times 8)\right] - 9 \times 4$ is:

A. –4

B. –11 ✓

C. 13

D. 25

Q13 Mathematics

If the cost price is 92% of the selling price, then the percentage profit is:

A. 5.65

B. 6.70

C. 8.70 ✓

D. 7.25

Q14 Mathematics

Two boys Rishi and Vamsi start at the same time to ride from Lucknow to Kanpur that is 95 km away. Rishi travels 5 km/h slower than Vamsi. Vamsi reaches Kanpur and immediately start to travel back. On his return journey he meets Rishi who is 25 km away from Kanpur.

Find Rishi's speed.

A. 7 km/h ✓

B. 5 km/h

C. 8 km/h

D. 6 km/h

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Q15 Mathematics

If 2 men or 3 women can finish a piece of work in 15 days. In how many days can 6 men and 9 women together do the same piece of work?

A. $6\frac{1}{3}$

B. $3\frac{1}{3}$

C. $4\frac{1}{2}$

D. $2\frac{1}{2}$ ✓

Q16 Mathematics

If $\sin\theta + \cos\theta = \sqrt{3}\cos(90-\theta)$ then $\tan\theta = ?$

A. $\sqrt{2-1}$

B. $\frac{1}{\sqrt{3}-1}$ ✓

C. $\frac{1}{\sqrt{2}-1}$

D. $\sqrt{3}-1$

Q17 Mathematics

A and B together can complete a piece of work in 16 days. If A alone can complete the same work in 24 days, in how many days can B alone complete that work?

A. 40

B. 46

C. 48 ✓

D. 42

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Q18 Mathematics

A sum becomes its double in 8 years. The annual rate of simple interest is:

A. $9\frac{1}{2}\%$

B. $12\frac{1}{2}\%$ ✓

C. 8%

D. 10%

Q19 Mathematics

The sum of the digits of the smallest number which, when divided by 18, 21, 25 and 39 leaves a remainder of 3 in each case is:

A. 21 ✓

B. 25

C. 39

D. 18

Q20 Mathematics

For two events A and B, $P(A) = \frac{1}{3}, P(B) = \frac{1}{4}$ *and* $P(A \cup B) = \frac{1}{2}$. $P\left(\frac{A}{B}\right) = ?$

A. $\frac{1}{2}$

B. $\frac{1}{4}$

C. 1

D. $\frac{1}{3}$ ✓

Q21 Mathematics

If $x + y = 9$ *and* $xy = 18$, then the value of $x^2 + y^2$ is:

A. 45 ✓

B. 18

C. 12

D. 36

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Q22 Mathematics

The product of the LCM and HCF of two positive numbers is 28 and their difference is 3. The numbers are:

A. 5 and 6

B. 3 and 5

C. 7 and 5

D. 4 and 7 ✓

Q23 Mathematics

The value of $5\frac{7}{9} \div 4\frac{1}{3} \times 6\frac{9}{14} + \frac{7}{9} \times 18$ is:

A. $22\frac{6}{7}$ ✓

B. $21\frac{6}{8}$

C. $22\frac{7}{6}$

D. $21\frac{8}{6}$

Q24 Mathematics

A maximum of how many pieces of 34.6 cm can be cut from a 658 cm long rod?

A. 15

B. 19 ✓

C. 21

D. 17

Q25 Mathematics

The ratio of water and milk in a 72 L of mixture is 4 : 5. Then what amount of milk is to be added to this mixture to make the ratio 3 : 6?

A. 24 L ✓

B. 36 L

C. 72 L

D. 12 L

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Q26 Mathematics

A business man sold two flats for ₹8,25,000 each. On one he gains 9% while on the other he loses 9%. Then how much is his gain or loss in the whole transaction?

A. 0.75% profit

B. 0.96% profit

C. 0.18% loss

D. 0.81% loss ✓

Q27 Mathematics

If $x^2 + 25y^2 = 10xy$, then $x : y = ?$

A. 5 : 1 ✓

B. 3 : 5

C. 1 : 5

D. 2 : 3

Q28 Mathematics

If 45% of a number is 15 less than 70% of that number, then the number is:

A. 60 ✓

B. 70

C. 50

D. 40

Q29 Mathematics

If the ratio of the areas of two squares is 169 : 196, then the ratio of their perimeters is:

A. 13 : 14 ✓

B. 14 : 13

C. 196 : 169

D. 169 : 196

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Q30 Mathematics

If $\sqrt{5^n} = 625$, then the value of n is:

A. 8 ✓

B. 6

C. 7

D. 9

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the mean proportional between 169 and 121.

A. 147

B. 165

C. 143 ✓

D. 179

Q2 Mathematics

Two numbers are in the ratio of 2 : 3. If each number increased by 20, the ratio becomes 3 : 4. The numbers are:

A. 30, 40

B. 40, 60 ✓

C. 20, 25

D. 20, 30

Q3 Mathematics

What percentage of 7.2 kg is 18 g?

A. 0.30%

B. 0.50%

C. 0.25% ✓

D. 0.75%

Q4 Mathematics

If $\sqrt{1296} = x^2$, then the value of x will be:

A. 4

B. 5

C. 7

D. 6 ✓

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Q5 Mathematics

M completes a task in 20 days and N completes the same task in 30 days. In how many days will both of them complete the same task working together?

A. 13

B. 12 ✓

C. 11

D. 10

Q6 Mathematics

The sum of the angles of the various sections in a pie diagram is:

A. 180°

B. 90°

C. 360° ✓

D. 270°

Q7 Mathematics

A man purchased a bat for ₹800 and sold it at a gain of 20%. The selling price of the bat is:

A. ₹1,200

B. ₹1,300

C. ₹ 960 ✓

D. ₹1,100

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Q8 Mathematics

Solve the following.

$\sqrt{\frac{225}{729}} - \sqrt{\frac{25}{144}} - \sqrt{\frac{16}{81}} = ?$

A. $\frac{-7}{12}$

B. $\frac{-11}{36}$ ✓

C. $\frac{-5}{9}$

D. $\frac{-20}{27}$

Q9 Mathematics

The area of a square is equal to the area of a rectangle. The ratio of the length and the width of the rectangle is 4 : 1. If each edge of the square is 8 cm, what is the perimeter of the rectangle?

A. 20 cm

B. 40 cm ✓

C. 32 cm

D. 10 cm

Q10 Mathematics

If $\frac{a}{b} = \frac{4}{3}$, then what will be the value of $\frac{6a + 2b}{4a - 2b}$?

A. 3 ✓

B. 6

C. 4

D. 5

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Q11 Mathematics

In how many years will a sum of money double itself at 18% simple interest per annum?

A. 5 years 6 months

B. 5 years 4 months

C. 5 years 5 months

D. 5 years 7 months ✓

Q12 Mathematics

Durga bought 6.35 m of dress materials for her elder daughter and 5.65 m for the younger one. How much total dress material did she buy for her daughters?

A. 13 m

B. 10 m

C. 11 m

D. 12 m ✓

Q13 Mathematics

A bus travelling with $\frac{5}{7}$ of its actual speed covers 42 km in 1 h 40 min 48 s. Find the actual speed of the bus.

A. $17\frac{6}{7}$ km/h

B. 35 km/h ✓

C. 30 km/h

D. 25 km/h

Q14 Mathematics

What decimal fraction is 180 ml of a litre?

A. 0.18 ✓

B. 0.018

C. 0.0018

D. 0.81

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Q15 Mathematics

Which of the following fractions is the largest?

$\frac{11}{12}, \frac{12}{13}, \frac{15}{16}, \frac{13}{14}$

A. $\frac{11}{12}$

B. $\frac{13}{14}$

C. $\frac{15}{16}$ ✓

D. $\frac{12}{13}$

Q16 Mathematics

Ramu goes to his college from his house at a speed of 2 km/h and returns at a speed of 3 km/h. If he takes 5 h in going and coming, the distance between his house and college is:

A. 6 km ✓

B. 7.5 km

C. 5 km

D. 7 km

Q17 Mathematics

Two points which divide the line segment in the ratio of 1 : 2 and 2 : 1 are called the points of:

A. centroid

B. concurrence

C. trisection ✓

D. bisection

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Q18 Mathematics

If 50% of x is the same as 25% of y, then x : y is equal to:

A. 2 : 3

B. 1 : 2 ✓

C. 3 : 2

D. 2 : 1

Q19 Mathematics

Select the number that can replace the question mark (?) in the following equation.

$0.008 \div ? = 0.8$

A. 0.01 ✓

B. 0.001

C. 1.0

D. 0.0001

Q20 Mathematics

When a bar graph is drawn to the scale 1 cm = 20 units, the value represented by a rectangle of height 4.7 cm is:

A. 94 units ✓

B. 98 units

C. 96 units

D. 95 units

Q21 Mathematics

If $\alpha = 30°$, then find the value of $2\sin\alpha\cos\alpha$.

A. $\frac{1}{\sqrt{3}}$

B. $\frac{\sqrt{3}}{2}$ ✓

C. $\frac{2}{\sqrt{3}}$

D. $\frac{\sqrt{2}}{3}$

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Q22 Mathematics

Find the value of $\sec(2100)^\circ$.

A. 3

B. 1

C. 2 ✓

D. 4

Q23 Mathematics

Simplify the following.

$$1 \div \left\{\frac{1}{2} + \frac{1}{3} + \frac{1}{6} \div \left(\frac{3}{4} - \frac{1}{3}\right)\right\}$$

A. $\frac{30}{37}$ ✓

B. $\frac{35}{37}$

C. $\frac{36}{37}$

D. $\frac{32}{37}$

Q24 Mathematics

What is the value of the following expression?

$$\frac{5 \times 1.6 - 2 \times 1.4}{1.3}$$

A. 1

B. 3

C. 4 ✓

D. 2

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Q25 Mathematics

Which of the following point lies on the x-axis?

A. $(0, 4)$

B. $(2, 0)$ ✓

C. $(2, 3)$

D. $(1, 2)$

Q26 Mathematics

The product of $0.4 \times 0.04 \times 0.004$ is:

A. 0.000064 ✓

B. 0.00054

C. 0.04

D. 0.0044

Q27 Mathematics

Find the value of

$\cos 100° . \cos 40° + \sin 100° . \sin 40°.$

A. $\frac{-1}{\sqrt{2}}$

B. $\frac{1}{2}$ ✓

C. $\frac{-1}{2}$

D. $\frac{1}{\sqrt{2}}$

Q28 Mathematics

When a commodity is sold for ₹34.80, there is a loss of 25%. What is the cost price of the commodity?

A. ₹44.40

B. ₹45.40

C. ₹46.40 ✓

D. ₹47.40

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Q29 Mathematics

If $x\%$ of $160 = 8$, then what will be the value of x=?

A. 6

B. 8

C. 10

D. 5 ✓

Q30 Mathematics

What should be subtracted from the product of 0.527 and 2.013 to get 1?

A. 0.060851 ✓

B. 2.060851

C. 0.939085

D. 1.939085

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The mean of three numbers is 53. The range of this data set is 28 while the difference between the two smallest numbers is 8. The greatest of the three numbers is:

A. 72
B. 71
C. 73
D. 69 ✓

Q2 Mathematics

A mixture contains alcohol and water in the ratio of 5 : 4. If 9 litres of water is added to the mixture, the ratio of alcohol to water becomes 4 : 5. Find the quantity of alcohol in the mixture.

A. 20 litres ✓
B. 16 litres
C. 24 litres
D. 28 litres

Q3 Mathematics

The simple interest on a certain sum for 5 years at 13% per annum is ₹650. The sum is:

A. ₹1,096
B. ₹1,090
C. ₹1,000 ✓
D. ₹1,065

Q4 Mathematics

In the number 76897, what is the place value of 8?

A. 8000
B. 800 ✓
C. 8
D. 80

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Q5 Mathematics

If $4A = 5B$ and $6B = 7C$, then $A : C$ is:

A. $34 : 24$

B. $35 : 24$ ✓

C. $38 : 24$

D. $36 : 24$

Q6 Mathematics

The minimum value of $9\sin^2\theta + 10\cos^2\theta$ is:

A. 1

B. 0

C. 8

D. 9 ✓

Q7 Mathematics

If Seenu covers a distance of 15.5 km in 5 hours, then the distance covered by him in 6 hours is:

A. 17.6 km

B. 16.6 km

C. 19.6 km

D. 18.6 km ✓

Q8 Mathematics

75% of 75% is equal to:

A. 0.5666

B. 0.5652

C. 0.5662

D. 0.5625 ✓

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Q9 Mathematics

Ranga and Raju together can complete a task in 6 days. If Ranga alone can complete the same task in 18 days, then how many days will Raju take to complete the task?

A. 6

B. 7

C. 8

D. 9 ✓

Q10 Mathematics

A man buys 20 articles for ₹16 and sells them at the rate of ₹1.50 per article. What is his gain in percentage?

A. 86.5%

B. 84.5%

C. 87.5% ✓

D. 85.5%

Q11 Mathematics

The angle between two circles $x^2 + y^2 - 12x - 6y + 41 = 0$ and $x^2 + y^2 + kx + 6y - 59 = 0$ is $45°$. Find the value of k.

A. ± 3

B. ± 4 ✓

C. 4

D. -4

Q12 Mathematics

Find the value of $45 \div 0.09$.

A. 5000

B. 5

C. 500 ✓

D. 50

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Q13 Mathematics

Which of the following is equal to 3.14×10^6 ?

A. 31400

B. 31400000

C. 314000

D. 3140000 ✓

Q14 Mathematics

In a right circular cylinder, the ratio of curved surface area to total surface area is 3:7. Find the ratio of height to radius of the cylinder.

A. 4 : 5

B. 4 : 3

C. 5 : 3

D. 3 : 4 ✓

Q15 Mathematics

Find the value of $\frac{(0.03)^2 + (0.51)^2 + (0.083)^2}{(0.003)^2 + (0.051)^2 + (0.0083)^2}$.

A. 1000

B. 100 ✓

C. 10

D. 0.1

Q16 Mathematics

What is the value of $\sin 90° + \tan 45° + \operatorname{cosec} 90°$?

A. 1

B. 3 ✓

C. 2

D. 4

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Q17 Mathematics

What is the least number which when added to 1000 gives a number exactly divisible by 15?

A. 7

B. 8

C. 6

D. 5 ✓

Q18 Mathematics

When 0.36 is written in its simplest fractional form, the sum of the numerator and the denominator is:

A. 32

B. 34 ✓

C. 35

D. 33

Q19 Mathematics

Find the value of $\frac{\sqrt{144}}{7} \times \frac{14}{12} \times \frac{7}{\sqrt{196}}$.

A. 2

B. 3

C. 1 ✓

D. 4

Q20 Mathematics

What is the value of $\frac{2}{7} \times [2 + \{2\,(11 + 4 - 2)\}] - 2$

A. 6 ✓

B. 8

C. 7

D. 9

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Q21 Mathematics

If the centre of a circle (c) is (-2, 3) and its radius is 4, then find the equation of the circle.

A. $x^2 + y^2 + 4x + 6y - 3 = 0$

B. $x^2 + y^2 + 4x - 6y - 3 = 0$ ✓

C. $x^2 + y^2 - 4x + 6y - 3 = 0$

D. $x^2 + y^2 - 4x + 6y + 3 = 0$

Q22 Mathematics

Which of the following fractions is the smallest?

A. $\frac{11}{12}$

B. $\frac{8}{13}$ ✓

C. $\frac{9}{11}$

D. $\frac{10}{14}$

Q23 Mathematics

In a frequency distribution, if the mid-value of the class is 35 and the value of the lower boundary is 30, then the value of its upper boundary is:

A. 30

B. 10

C. 40 ✓

D. 20

Q24 Mathematics

The ratio of two numbers is 2 : 3 and their LCM is 120. What is the smallest of two numbers?

A. 50

B. 40 ✓

C. 30

D. 20

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Q25 Mathematics

Arrange the following fractions in the ascending order.

$\frac{2}{3}, \frac{4}{8}, \frac{5}{9}$ and $\frac{9}{11}$

A. $\frac{4}{8} < \frac{5}{9} < \frac{9}{11} < \frac{2}{3}$

B. $\frac{5}{9} < \frac{2}{3} < \frac{9}{11} < \frac{4}{8}$

C. $\frac{4}{8} < \frac{5}{9} < \frac{2}{3} < \frac{9}{11}$ ✓

D. $\frac{5}{9} < \frac{2}{3} < \frac{4}{8} < \frac{9}{11}$

Q26 Mathematics

If $2xy\cos\theta + (x^2 - y^2)\sin\theta = x^2 + y^2$, then the value of $\tan\theta$ is:

A. $\frac{(x^2 - y^2)}{(x^2 + y^2)}$

B. $\frac{(x^2 + y^2)}{2xy}$

C. $\frac{(x^2 - y^2)}{2xy}$ ✓

D. $\frac{(y^2 - x^2)}{2xy}$

Q27 Mathematics

If $\sqrt{x} \div \sqrt{6.25} = 2$, then the value of x is:

A. 16

B. 13

C. 14

D. 25 ✓

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Q28 Mathematics

How many minutes will Chandu take to cover a distance of 600 m, if he runs at a speed of 30 km/h?

A. $1\frac{2}{5}$ min

B. $1\frac{1}{5}$ min ✓

C. $2\frac{2}{5}$ min

D. $2\frac{1}{5}$ min

Q29 Mathematics

Which number is 40% less than 80?

A. 68

B. 48 ✓

C. 38

D. 58

Q30 Mathematics

A man sells a car to his friend at a loss of 20%. Then, the friend sells it for ₹58,000 at a profit of 30%. The original cost price of the car (to the nearest integral value) was:

A. ₹54,769

B. ₹57,769

C. ₹55,769 ✓

D. ₹56,769

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Rakesh has coins in the denominations of only ₹2 and ₹5 with him. If the total number of coins that he has is 60 and the amount of money with him is ₹240, then find the number of ₹2 and ₹5 coins respectively.

A. 10 and 50

B. 20 and 40 ✓

C. 15 and 45

D. 25 and 35

Q2 Mathematics

Swapna travels by car equal distances with the speeds of 10 km/h, 15 km/h and 20 km/h and takes a total of 65 min. The total distance travelled by her (in km) is:

A. 10

B. 15 ✓

C. 12

D. 20

Q3 Mathematics

Manvi borrowed some money on simple interest, at the rate of 6% p.a. for the first three years, at the rate of 9% p.a. for the next five years and at the rate of 13% p.a. for the period beyond eight years. If the total interest paid by him at the end of eleven years is ₹8,160, how much money did he borrow?

A. ₹11,000

B. ₹8,000 ✓

C. ₹12,000

D. ₹10,000

Q4 Mathematics

Calculate the LCM of 22, 34 and 40.

A. 7260

B. 7840

C. 7480 ✓

D. 7420

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Q5 Mathematics

Ramu purchased a TV set with an additional 15% discount on the reduced price after deducting 25% discount on the labeled price. If the labeled price was ₹12,000, at what price did he purchase the TV set?

A. ₹7,650 ✓

B. ₹7,000

C. ₹7,560

D. ₹7,600

Q6 Mathematics

$\tan 100^\circ + \tan 125^\circ + \tan 100^\circ \tan 125^\circ$ is equal to:

A. $\frac{1}{2}$

B. 1 ✓

C. 0

D. -1

Q7 Mathematics

Manvi and Darshan together can complete a project work in 40 days. They worked together for 25 days and then Darshan left. After another 24 days, Manvi completed the remaining project work. In how many days can Manvi alone complete the project?

A. 54

B. 40

C. 50

D. 64 ✓

Q8 Mathematics

The diagonals of a quadrilateral ABCD bisect each other. In this quadrilateral, if $\angle A = 45^\circ$ then $\angle B = ?$

A. 120°

B. 135° ✓

C. 125°

D. 115°

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Q9 Mathematics

The ages of A and B are in the ratio $3:1$. Fifteen years hence, the ratio will be $2:1$. Their present ages are respectively:

A. 30 years, 10 years

B. 60 years, 20 years

C. 21 years, 7 years

D. 45 years, 15 years ✓

Q10 Mathematics

If $\text{cosec}\theta - \cot\theta = a$, then the value of $\text{cosec}\theta$ is:

A. $\frac{1}{2}\left(a + \frac{1}{a}\right)$ ✓

B. $\frac{1}{2}\left(a - \frac{1}{a}\right)$

C. $\frac{1}{4}\left(a - \frac{1}{a}\right)$

D. $\left(a + \frac{1}{a}\right)$

Q11 Mathematics

The positive value of $\sqrt{6+\sqrt{6+\sqrt{6+}}}$ ------- is:

A. 4

B. 3.5

C. 3 ✓

D. 2

Q12 Mathematics

Find the least number which is required to be added to 2495 so that the sum is exactly divisible by 3, 4, 5 and 6.

A. 33

B. 13

C. 25 ✓

D. 23

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Q13 Mathematics

A solid frustum of a cone is of height 8 cm. If the radii of its lower and upper ends are 3 cm and 9 cm respectively, then its slant height is:

A. 9 cm

B. 12 cm

C. 10 cm ✓

D. 15 cm

Q14 Mathematics

If the difference between a number and its two-fifth is 60, then the number is:

A. 100 ✓

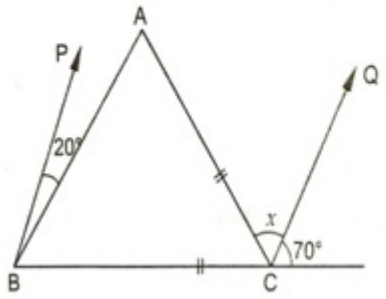
B. 125

C. 75

D. 105

Q15 Mathematics

In given figure, if BP ∥ CQ and AC = BC, then the measure of x is



A. 35°

B. 20°

C. 25°

D. 30° ✓

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Q16 Mathematics

Solve the given equation.

$\sin 21^\circ \cos 9^\circ - \cos 84^\circ \cos 6^\circ = ?$

A. $\frac{1}{2}$

B. $\frac{1}{4}$ ✓

C. $\frac{1}{8}$

D. 1

Q17 Mathematics

If mode of a series is greater than its mean by 9, then find the difference between the mode and the median.

A. 10

B. 6 ✓

C. 8

D. 4

Q18 Mathematics

Find the value of $\frac{(0.2)^3 + (0.04)^3}{(0.1)^2 \times 0.1 + (0.02) \times (0.02)^2}$

A. 9

B. 6

C. 7

D. 8 ✓

Q19 Mathematics

Tony should get 40% of the total marks to pass. He obtained 120 marks and failed by 30 marks. What are the total marks?

A. 400

B. 300

C. 375 ✓

D. 500

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Q20 Mathematics

The largest sphere is cut off from a solid cube of side 6 cm. The volume of the sphere will be:

A. $108\pi\ cm^3$

B. $12\pi\ cm^3$

C. $36\pi\ cm^3$ ✓

D. $27\pi\ cm^3$

Q21 Mathematics

The value of $\left(35.7-\left(3+\frac{1}{3+\frac{1}{3}}\right)-\left(2+\frac{1}{2+\frac{1}{2}}\right)\right)$ is:

A. 34.8

B. 36.6

C. 41.4

D. 30 ✓

Q22 Mathematics

Mahesh invested an amount of ₹8000 in a fixed deposit scheme for 2 years at compound interest 5 p.c.p.a. how much amount will Mahesh get on maturity of the fixed deposit?

A. ₹8800

B. ₹8820 ✓

C. ₹8720

D. ₹8900

Q23 Mathematics

The value of $\frac{(3.6\times0.48\times2.50)}{(0.12\times0.09\times0.5)}$ is:

A. 80000

B. 8000

C. 80

D. 800 ✓

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Q24 Mathematics

Calculate the HCF of $\frac{2}{3}, \frac{8}{9}, \frac{16}{81}, \frac{10}{27}$

A. $\frac{5}{81}$

B. $\frac{3}{81}$

C. $\frac{4}{81}$

D. $\frac{2}{81}$ ✓

Q25 Mathematics

Padma purchased 80 kg of tomatoes for ₹320 and sold them at the rate of ₹4.50 per kg. Find the percentage of her gain.

A. $12\frac{1}{2}\%$ ✓

B. $6\frac{1}{4}\%$

C. $4\frac{1}{6}\%$

D. $8\frac{1}{3}\%$

Q26 Mathematics

Solve the given equation. $\frac{3+\sqrt{6}}{5\sqrt{3}-2\sqrt{12}-\sqrt{32}+\sqrt{50}} = ?$

A. 6

B. 3

C. $3\sqrt{2}$

D. $\sqrt{3}$ ✓

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Q27 Mathematics

Ravi and Rajesh wrote an entrance examination to join the M.Tech. programme. Ravi obtained 8 marks more than Rajesh and his marks were 52% of the sum of their marks. What are marks obtained by Ravi and Rajesh respectively?

A. 90, 98

B. 108, 100

C. 104, 96 ✓

D. 100, 92

Q28 Mathematics

The square root of $(7+3\sqrt{5})(7-3\sqrt{5})$ is:

A. 4

B. $\sqrt{5}$

C. 2 ✓

D. $3\sqrt{5}$

Q29 Mathematics

If 33 is the sum of two numbers and 13 is their difference, then find the largest number.

A. 23 ✓

B. 18

C. 12

D. 15

Q30 Mathematics

A bus and a car start from points x and y respectively and travel towards each other at the speed of 60 km/h and 50 km/h respectively. By the time they meet, the bus has travelled 50 km more than the car. What is the distance between x and y?

A. 450 km

B. 500 km

C. 600 km

D. 550 km ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A hemispherical bowl, with an internal radius of 12 cm, contains a liquid. The liquid is to be filled into cylindrical shaped small bottles with a radius of 3 cm and a height of 4 cm. How many bottles would be required to completely empty the bowl?

A. 48

B. 32 ✓

C. 64

D. 56

Q2 Mathematics

The simple interest on a certain sum of money at the rate of 6% p.a. for 7 years is ₹840. At what rate of interest can the same amount of interest be received on the same sum of money after 5 years?

A. 6.6%

B. 8.4% ✓

C. 9.6%

D. 10.8%

Q3 Mathematics

Find the value of $\frac{564 \times 564 \times 564 - 246 \times 246 \times 246}{564 \times 564 + 564 \times 246 + 246 \times 246}$.

A. 358

B. 318 ✓

C. 700

D. 664

Q4 Mathematics

Sumanth bought a microwave oven at 15% less than its original price. He sold it at a profit of 35% on the price he had bought it for. By what percentage sales price set by Sumanth is more than the original price?

A. 21.23%

B. 14.75% ✓

C. 12.03%

D. 19.56%

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Q5 Mathematics

In a frequency distribution, the frequency of the observations 2, 4, 8, 7 and 5 is 5, 3, 2, 6 and 4, respectively. Find the arithmetic mean of this data.

A. 23

B. 25

C. 24

D. 5 ✓

Q6 Mathematics

The price of commodity X increases by 40 paise every year, while the price of commodity Y increases by 25 paise every year. If, in the year 2002, the price of X was ₹5.20 and that of Y was ₹6.30, then in which year would commodity X cost 40 paise more than commodity Y?

A. 2012 ✓

B. 2013

C. 2010

D. 2011

Q7 Mathematics

Find the greatest possible length that can be used to measure the lengths 4 m 20 cm, 31 m 50 cm and 14 m 70 cm exactly.

A. 165 cm

B. 170 cm

C. 190 cm

D. 210 cm ✓

Q8 Mathematics

When notebooks are distributed in a class, each child gets notebooks equivalent to one-eighth of the number of children in the class. If the number of children were halved, then each child would get 16 notebooks. How many note books are distributed in total?

A. 632

B. 512 ✓

C. 256

D. 452

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Q9 Mathematics

A alone can finish a task in 20 days, while B alone can finish it in 15 days. They together work for 5 days and stop, then the rest of the work is finished by C alone in 2 days. If they get paid ₹2,400 for finishing the whole task, then find the difference between the daily wages of C and A.

A. ₹350

B. ₹380 ✓

C. ₹470

D. ₹440

Q10 Mathematics

Determine the integer n such that $\frac{n}{160}$ is less than $\frac{1}{16}$ but more than $\frac{1}{20}$.

A. 7

B. 6

C. 8

D. 9 ✓

Q11 Mathematics

Positive value of $\sqrt{6+\sqrt{5+\sqrt{12+\sqrt{16}}}}$ is:

A. $\sqrt{6}$

B. $\sqrt{10}$

C. $3\sqrt{2}$

D. 3 ✓

Q12 Mathematics

Which mathematical operator should come in the place of '?' in the equation $(4\ ?\ 3) - 12 \div 4 + 2 = 11$.

A. $\times$ ✓

B. $\div$

C. $-$

D. $+$

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Q13 Mathematics

Find the centroid of a triangle formed by the points (2, 5), (3, 9) and (4, 1).

A. (3, 5) ✓

B. (6, 6)

C. (9, 15)

D. (3, 9)

Q14 Mathematics

A man borrows ₹2,460 to be paid back with compound interest at the rate of 5% p.a. by the end of 2 years, in equal installments. How much will each installment be?

A. ₹1,377

B. ₹1,275

C. ₹1,323 ✓

D. ₹1,283

Q15 Mathematics

A tailor makes 6 pieces out of 1 m of cloth. If he has 33.5 m of cloth, then how many pieces can he make out of this cloth?

A. 5.6

B. 196

C. 95

D. 201 ✓

Q16 Mathematics

Find the value of $\frac{3\sqrt{2}}{\sqrt{6}+\sqrt{3}} - \frac{4\sqrt{3}}{\sqrt{6}+\sqrt{2}} - \frac{6}{\sqrt{8}-\sqrt{12}}$.

A. $4\sqrt{2}$

B. $6\sqrt{3}$

C. $5\sqrt{3}$ ✓

D. $5\sqrt{2}$

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Q17 Mathematics

Find the value of the given series of numbers.

$25 + 26 + ... + 75 = ?$

A. 2525

B. 2755

C. 2550 ✓

D. 2750

Q18 Mathematics

If 15% of $(x - y)$ = 9% of $(x + y)$, then y is what percentage of x?

A. 400%

B. 25% ✓

C. 300%

D. 150%

Q19 Mathematics

21 women can complete a task in 40 days. 30 men can complete the task in 21 days. What is the ratio of the number of days a man will take to complete the task alone to the number of days a woman will need to do that task?

A. 2 : 1

B. 3 : 4

C. 4 : 3 ✓

D. 5 : 3

Q20 Mathematics

In rhombus ABCD, the diagonals intersect at point E. If m∠ECB = 5a+4 and m∠EBC = 4a + 5. Find m∠EBC.

A. 41° ✓

B. 49°

C. 35°

D. 45°

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Q21 Mathematics

If the arithmetic mean and geometric mean of two observations are 10 and 5, respectively, then find the sum of the squares of the observations.

A. 275

B. 295

C. 350 ✓

D. 225

Q22 Mathematics

If the radius of a sphere is increased by 50%, then the surface area of the new sphere will be _____ of the surface area of the original sphere.

A. 235%

B. 237.5%

C. 255.5%

D. 225% ✓

Q23 Mathematics

A pyramid is placed on a cube of side 10 cm such that the base of the pyramid is completely aligned with the top face of the cube. The altitude of the pyramid is thrice the side of the cube. Find the volume of the entire object.

A. 2250 cm^3

B. 1000 cm^3

C. 1600 cm^3

D. 2000 cm^3 ✓

Q24 Mathematics

From a group of boys and girls, if 12 girls leave the group, then the ratio of boys to girls is 2 : 1. After this, if 30 boys leave the group, then the ratio of girls to boys becomes 3 : 1. Find the initial number of boys and girls in the group.

A. 36 boys and 30 girls ✓

B. 40 boys and 20 girls

C. 34 boys and 35 girls

D. 38 boys and 25 girls

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Q25 Mathematics

10 points are placed uniformly along the perimeter of a circle. Let A and B be two points among these such that they are the end points of a diameter. If a triangle formed using three of these points is chosen at random, what is the probability that it will lie completely on one side of AB, the points A and B being included?

A. $\frac{1}{6}$

B. $\frac{1}{3}$ ✓

C. $\frac{1}{2}$

D. $\frac{1}{5}$

Q26 Mathematics

If $A : B : C = 2 : 4 : 6$, then $\frac{A}{B} : \frac{B}{C} : \frac{C}{A} = ?$

A. $3 : 4 : 18$ ✓

B. $3 : 4 : 10$

C. $4 : 3 : 16$

D. $4 : 3 : 8$

Q27 Mathematics

The electricity bill of an establishment is partly fixed and partly varies as per the number of units of electricity consumed. In a certain month, when 480 units were consumed, then the bill was ₹1,620. In another month, when 690 units were consumed, then the bill was ₹2,250. In the next month, if 500 units are consumed, then the bill for that month will be:

A. ₹1,950

B. ₹1,680 ✓

C. ₹1,560

D. ₹1,840

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Q28 Mathematics

In an examination, 28% of the students failed in Hindi and 32% failed in English. If 20% of the students failed in both the subjects then the percentage of students who passed in both the subjects is:

A. 56%

B. 52%

C. 48%

D. 60% ✓

Q29 Mathematics

A pole consists of a steel portion, and a wooden portion on top of the steel portion. Point A on the ground, is 100m away from the base of the pole. The angle of elevation from point A to the top S of the wooden portion of the pole, is 60°. The angle of elevation, from A to the top R of the steel portion of the pole, is 45°. What is the height of the wooden potion of the pole? (Take $\sqrt{3} = 1.732$)

A. 141.2 m

B. 98.2 m

C. 73.2 m ✓

D. 114.2 m

Q30 Mathematics

Two cyclists start from the same place and go in opposite directions. One goes towards the north at the speed of 14 km/h and the other goes towards the south at 21 km/h. How long do they take to be 43.75 km apart?

A. 85 min

B. 105 min

C. 75 min ✓

D. 95 min

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

What is the mean proportional between $8 + 3\sqrt{3}$ and $16 - 6\sqrt{3}$?

A. $\sqrt{48}$

B. $\sqrt{128}$

C. $\sqrt{74}$ ✓

D. $\sqrt{54}$

Q2 Mathematics

Find the value of the following.

$\sqrt{0.0025} \times \sqrt{2.25} \times \sqrt{0.0625}$

A. 0.01245

B. 0.01275

C. 0.01875 ✓

D. 0.02255

Q3 Mathematics

Calculate the standard deviation for the following data.

4, 7, 9, 10, 15

A. 2.733

B. 3.633 ✓

C. 3.533

D. 3.133

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Q4 Mathematics

If $\sin\theta + \cos\theta = 1$, then the value of $\tan 2\theta$ is:

A. 1

B. $\frac{1}{2}$

C. 0 ✓

D. -1

Q5 Mathematics

What would be the highest values of X and Z in the given equation?

$7X2 + 9Y3 + Z35 = 1770$

A. $X = 3, Z = 2$

B. $X = 3, Z = 1$ ✓

C. $X = 7, Z = 2$

D. $X = 1, Z = 1$

Q6 Mathematics

A book was sold for ₹20.70 at a profit of 15%. If it was sold for ₹18.54, then what would have been the percentage profit?

A. 3% ✓

B. 4%

C. 3.5%

D. 4.5%

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Q7 Mathematics

A person covers a distance of 8 km in 56 minutes. If he covers half of the distance in two-third of the total time, then what should his speed (in km/h) be to cover the remaining distance in the remaining time?

A. $12\frac{5}{7}$

B. $2\frac{6}{7}$

C. $12\frac{6}{7}$ ✓

D. $12\frac{4}{7}$

Q8 Mathematics

A man purchased an item at $\frac{3}{4}$ of its marked price and sold it at 15% more than its marked price. What is his gain percentage?

A. $1\frac{1}{3}\%$

B. $53\frac{1}{3}\%$ ✓

C. $15\frac{1}{5}\%$

D. $5\frac{1}{3}\%$

Q9 Mathematics

If a certain sum at interest rate $6\frac{1}{4}\%$ per year, compounded yearly, for 3 years, amounts to ₹4,913 then find the simple interest on the same sum at the same rate of interest for the same period.

A. ₹756

B. ₹768 ✓

C. ₹764

D. ₹766

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Q10 Mathematics

Find the area of a rhombus whose side measures 13 cm and one diagonal measures 24 cm.

A. $120\ cm^2$ ✓

B. $125\ cm^2$

C. $110\ cm^2$

D. $115\ cm^2$

Q11 Mathematics

Find the value of the following.

$$\frac{1}{1\times 2}+\frac{1}{2\times 3}+\cdots+\frac{1}{99\times 100}$$

A. 0.29

B. 0.99 ✓

C. 0.92

D. 0.95

Q12 Mathematics

Two numbers are respectively 30% and 80% more than a third number. These two numbers are in the ratio of:

A. 3 : 8

B. 8 : 13

C. 13 : 18 ✓

D. 7 : 2

Q13 Mathematics

The sum of the interior angles of a polygon of 11 sides is:

A. 1500°

B. 1610°

C. 1650°

D. 1620° ✓

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Q14 Mathematics

Find the value of y from the following equation.

$$\frac{396 \div 18 \times 5 - 100}{y} = 7^2 \div 8 + 3.875$$

A. $y = -1$

B. $y = 2$

C. $y = 1$ ✓

D. $y = -2$

Q15 Mathematics

Simplify the following.

$0.\overline{077} \div 7.\overline{33}$

A. $\frac{7}{666}$ ✓

B. $\frac{7}{333}$

C. $\frac{7}{66}$

D. $\frac{7}{33}$

Q16 Mathematics

If $\sqrt{x} \div \sqrt{169} = 0.05$, then the value of x is:

A. 0.4223

B. 0.4115

C. 0.4225 ✓

D. 0.4234

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Q17 Mathematics

Three containers contain 204, 136 and 119 litres of water respectively. Find the maximum capacity of a small container that can measure the water of each big container an exact number of times.

A. 18 litres

B. 19 litres

C. 17 litres ✓

D. 15 litres

Q18 Mathematics

Calculate the mean for the following data.

2.7, 3.2, 7.3, 12.4, 16.3

A. 8.40

B. 8.38 ✓

C. 8.44

D. 8.42

Q19 Mathematics

Find the relation between x and y such that the point (x, y) is equidistant from (5, 3) and (4, 6).

A. $x + 3y = 10$

B. $x - 3y = 9$

C. $3y - x = 9$ ✓

D. $x + 3y + 9 = 0$

Q20 Mathematics

If $4x^2 - 8x + 3 = 0$, then what are possible values of x?

A. 2.5, 1.5

B. 0.2, 0.5

C. 1.5, 0.5 ✓

D. 2, 1.5

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Q21 Mathematics

If $\sqrt{3^n} = \sqrt{6561}$, then the value of n is:

A. 8 ✓

B. 4

C. 3

D. 6

Q22 Mathematics

If A is 125% of B, then B is what percentage of (A – B)?

A. 150%

B. 300%

C. 400% ✓

D. 200%

Q23 Mathematics

Find the greatest number of five digits that is divisible by 15, 21 and 35.

A. 99980

B. 99940

C. 99950

D. 99960 ✓

Q24 Mathematics

If $\frac{a^2-1}{a} = 5$, then $\frac{a^6-1}{a^3} = ?$

A. 140 ✓

B. 120

C. 130

D. 125

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Q25 Mathematics

P can run 300 m in 20 s and Q can run the same distance in 30 s. By what distance is P ahead of Q after 4 s, if both start the race at the same time?

A. 20 m ✓

B. 60 m

C. 30 m

D. 40 m

Q26 Mathematics

Find the ratio of the area of the incircle to that of the circumcircle of a square.

A. 1 : 3

B. 2 : 3

C. 3 : 5

D. 1 : 2 ✓

Q27 Mathematics

3 men and 6 women can finish a task in 12 days, whereas 5 men and 4 women can finish it in 8 days. In how many days 1 man alone can finish the same task?

A. $42\frac{1}{5}$

B. $43\frac{2}{5}$

C. $41\frac{1}{5}$

D. $43\frac{1}{5}$ ✓

Q28 Mathematics

$\sin\alpha = \frac{1}{\sqrt{5}}$ and $\cos\beta = \frac{3}{\sqrt{10}}$, then find the value of $\alpha + \beta$

A. 90°

B. 60°

C. 45° ✓

D. 30°

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Q29 Mathematics

If an article is sold at a 150% profit, then the ratio of its cost price to its selling price will be:

A. 2 : 5 ✓

B. 4 : 9

C. 3 : 5

D. 5 : 7

Q30 Mathematics

Which of the following numbers is prime?

A. 337 ✓

B. 243

C. 343

D. 377

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

John is only 40% as efficient as Jesse. If John alone can do a piece of work in 35 days, how many days will it take the duo to complete the work, if they work together?

A. 9 days

B. 12 days

C. 11 days

D. 10 days ✓

Q2 Mathematics

The sum of three numbers is 253. If the first number be twice the second and third number be one-third of the first, then the second number is

A. 69 ✓

B. 54

C. 48

D. 84

Q3 Mathematics

A cylindrical vessel of inner radius 4 cm contains water up to some height. A solid sphere of radius 3 cm is lowered into the water until it is completely immersed. The water level in the vessel will rise by:

A. $\frac{4}{9}\ cm$

B. $\frac{9}{4}\ cm$ ✓

C. $\frac{2}{9}\ cm$

D. $\frac{9}{2}\ cm$

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Q4 Mathematics

Calculate the approximate simple interest on ₹73,000 at $13\frac{1}{3}\%$ per annum for 10 months.

A. ₹8,111 ✓

B. ₹9,000

C. ₹6,112

D. ₹7,500

Q5 Mathematics

Simplify the following.

$$\frac{0.2 \times 0.2 + 0.02 \times 0.02 - 0.4 \times 0.02}{0.36}$$

A. 0.09 ✓

B. 9

C. 0.009

D. 0.9

Q6 Mathematics

A hollow sphere of internal and external diameters 4 cm and 8 cm is melted into cone of base diameter 8 cm. The height of the cone is:

A. 20 cm

B. 14 cm ✓

C. 15 cm

D. 16 cm

Q7 Mathematics

The length of a rectangle is 30 cm and its width is $\frac{2}{3}$ of its length. What will be the area of a square having a perimeter that is identical to the perimeter of the rectangle described here?

A. 640 cm^2

B. 600 cm^2

C. 620 cm^2

D. 625 cm^2 ✓

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Q8 Mathematics

Find the approximate percentage of aggregate marks scored by Ramesh, who obtained 50 %, 60 % and 70 % marks in three examinations with maximum marks 100, 130 and 150 respectively.

A. 70.1

B. 55.5

C. 61.32 ✓

D. 71.23

Q9 Mathematics

Find the value of $\sin 34° + \cos 64° - \cos 4°$

A. 1

B. $\frac{3}{4}$

C. $\frac{1}{2}$

D. 0 ✓

Q10 Mathematics

A train when moves at an average speed of 40 km/h, reaches its destination on time. When its average speed becomes 35 km/h, then it reaches its destination 15 min late. Find the distance.

A. 70 km ✓

B. 40 km

C. 80 km

D. 30 km

Q11 Mathematics

If $(1+\tan\alpha)(1+\tan 4\alpha) = 2, \alpha \in \left(0, \frac{\pi}{16}\right)$ then α is equal to:

A. $\frac{\pi}{60}$

B. $\frac{\pi}{30}$

C. $\frac{\pi}{40}$

D. $\frac{\pi}{20}$ ✓

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Q12 Mathematics

The positive value of $\sqrt{10+\sqrt{25+\sqrt{108+\sqrt{154+\sqrt{225}}}}}$ is:

A. 10

B. 6

C. 8

D. 4 ✓

Q13 Mathematics

In an election between two candidates, 75 % of the voters cast their votes, out of which 2 % of the votes were declared invalid. A candidate got 9261 votes which were 75 % of the total valid votes. Find the total number of voters enrolled in that election where each voter can cast only one vote.

A. 15800

B. 16800 ✓

C. 16200

D. 16000

Q14 Mathematics

If 24 is the LCM of two numbers and the numbers are in the ratio of 1 : 2, then the product of the two numbers is:

A. 280

B. 288 ✓

C. 820

D. 300

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Q15 Mathematics

The denominator of a fraction is 3 more than the numerator. If the numerator as well as the denominator are increased by 4, the fraction becomes $\frac{4}{5}$ then what was the original fraction?

A. $\frac{10}{13}$

B. $\frac{7}{10}$

C. $\frac{8}{11}$ ✓

D. $\frac{5}{8}$

Q16 Mathematics

The cost price of an article is 64% of the marked price. Calculate the percentage gain after allowing a discount of 12%.

A. 37.5 ✓

B. 48

C. 50.5

D. 52

Q17 Mathematics

Find the value of $21^2 + 22^2 + 23^2 + \cdots \ldots + 30^2$

A. 6585 ✓

B. 6855

C. 5865

D. 8565

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Q18 Mathematics

If $a_1, a_2, a_3, \ldots \ldots a_n \in R$, then $(x-a_1)^2+(x-a_2)^2+\ldots\ldots+(x-a_n)^2=0$ assumes its least value at:

A. $x=\frac{2(a_1+a_2+a_3+\ldots+a_n)}{n}$

B. $x=2(a_1+a_2+a_3+\ldots+a_n)$

C. $x=n(a_1+a_2+a_3+\ldots a_n)$

D. $x=\frac{(a_1+a_2+a_3+\ldots+a_n)}{n}$ ✓

Q19 Mathematics

Find the least positive integer such that its square is greater than 5 times of the integer by –6.

A. 4

B. 5

C. 3

D. 2 ✓

Q20 Mathematics

If $\cos 28^\circ+\sin 28^\circ=k$, then $\cos 17^\circ$ is equal to:

A. $-\frac{k}{\sqrt{2}}$

B. $\frac{k}{\sqrt{2}}$ ✓

C. $\sqrt{2}k$

D. $\frac{k}{2}$

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Q21 Mathematics

The average marks obtained by a group of 45 students were 16.2. One student left the group as a result of which the average of the remaining students rose to 16.5. But another student came in as a result of which the average marks of the group dropped a bit and became 16.4. What were the average marks obtained by the student who left and the one who joined?

A. 7.5 ✓

B. 6

C. 12.5

D. 15

Q22 Mathematics

रफीक और प्रीतम ने दो समान धनराशियां, क्रमशः 15% और 10% वार्षिक चक्रवृद्धि ब्याज की दर पर दो वर्ष के लिए निवेश की। यदि इन दो वर्षों के दौरान ब्याज के रूप में रफ़ीक को प्रीतम से ₹2,250 अधिक मिलते हैं, तो उनमें से प्रत्येक का आरंभिक निवेश कितना था?

A. ₹22,500

B. ₹20,250

C. ₹20,000 ✓

D. ₹18,000

Q23 Mathematics

If the cost of a car and a bike are in the ratio of 3 : 2 and cost of the car is ₹15000 more than the bike, then find the cost (in ₹) of the bike.

A. 20,000

B. 32,000

C. 30,000 ✓

D. 24,000

Q24 Mathematics

The value of $\frac{3\sqrt{2}}{\sqrt{6}-\sqrt{3}} - \frac{4\sqrt{3}}{\sqrt{6}-\sqrt{2}} - \frac{6}{\sqrt{8}-\sqrt{12}}$ is:

A. $5\sqrt{3}$ ✓

B. $\sqrt{3}+\sqrt{2}$

C. $\sqrt{3}-\sqrt{2}$

D. 1

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Q25 Mathematics

A point P is 13 cm from the center of a circle. The length of the tangent drawn from P to the circle is 12 cm. Find the radius of the circle.

A. 4 cm

B. 3 cm

C. 6 cm

D. 5 cm ✓

Q26 Mathematics

If the system of equation $3x - 2y = 8$, $2ax + (a-b)y = 48$ has infinitely many solutions then:

A. $a + 3b = 0$

B. $a = b$

C. $3a + b = 0$

D. $a = 3b$

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q27 Mathematics

If ₹12,000 becomes ₹15,000 at simple interest in 5 years, then find the rate of interest per annum.

A. 6%

B. 3%

C. 4%

D. 5% ✓

Q28 Mathematics

The value of $\frac{(0.96)^3-(0.1)^3}{(0.96)^2+0.096+(0.1)^2}$ is :

A. 1.06

B. 0.97

C. 0.86 ✓

D. 0.95

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Q29 Mathematics

Find the least number, which gives the same remainder 5, when divided by 6, 10, 15 and 24.

A. 120

B. 125 ✓

C. 215

D. 521

Q30 Mathematics

Two men start together walking to a certain destination, one at the speed of 3 km/h and another at the speed of 3.75 km/h. The latter arrives half an hour before the former, the distance is:

A. 9.5 km

B. 7.5 km ✓

C. 6 km

D. 8 km

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A, B and C can complete a piece of work in 6, 4 and 10 days, respectively. If they are working together, then the number of days they will take to complete the same work is:

A. $2\frac{20}{21}$

B. $1\frac{31}{30}$

C. $2\frac{21}{20}$

D. $1\frac{29}{31}$ ✓

Q2 Mathematics

The value of $\sqrt{217+\sqrt{50+\sqrt{196}}}$ is:

A. 14

B. 15 ✓

C. 25

D. 64

Q3 Mathematics

Anand purchased a car for ₹3,75,000 and sold it at a loss of 15%. At what cost did he sell the car?

A. ₹3,36,250

B. ₹3,58,000

C. ₹3,18,750 ✓

D. ₹3,25,000

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Q4 Mathematics

Kamal can complete a work in 14 days. Vimal is 40% more efficient than Kamal. The number of days Vimal will take to complete the same piece of work is:

A. 12 days

B. 14 days

C. 15 days

D. 10 days ✓

Q5 Mathematics

The value of $\frac{56}{5} + 5\frac{1}{10} \div 3\frac{2}{5}$ is:

A. $10\frac{7}{12}$

B. $12\frac{7}{10}$ ✓

C. $8\frac{4}{7}$

D. $9\frac{1}{4}$

Q6 Mathematics

Excluding the stoppages, the speed of a bus is 80 km/h and including the stoppages, the speed of the bus is 52 km/h. How many minutes does the bus stop per hour?

A. 25 min

B. 30 min

C. 21 min ✓

D. 45 min

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Q7 Mathematics

Certain amount becomes ₹230 in 3 years at 5% simple interest per annum. Then the principal amount (in ₹) is:

A. 150

B. 320

C. 200 ✓

D. 180

Q8 Mathematics

In an election involving two candidates, 86 votes were declared invalid. The winning candidate secured 58% and won by 256 votes. The total number of votes polled is:

A. 1866

B. 1668

C. 1686 ✓

D. 1868

Q9 Mathematics

The value of $3 + [3 \times \{3 - (3 + 3) \div 6\}]$ is:

A. -3

B. 9 ✓

C. 6

D. 3

Q10 Mathematics

A cistern 8 m long and 4 m wide contains water up to a depth of 1 m 22 cm. Then the total area of the wet surface is:

A. $71.28\ m^2$

B. $51.28\ m^2$

C. $61.28\ m^2$ ✓

D. $81.28\ m^2$

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Q11 Mathematics

The greatest number, which will divide 39 and 84 to leave remainder 3 in each case, is:

A. 9 ✓

B. 4

C. 2

D. 6

Q12 Mathematics

What will be the interest on the amount of ₹25,000 compounded annually at the rate of 4%, 5% and 6% per annum for the first, second and third year respectively?

A. ₹3938 ✓

B. ₹3939

C. ₹3838

D. ₹3839

Q13 Mathematics

If we select 3 persons randomly from a group, consisting of 4 men, 3 women and 2 boys, then the probability that 2 men are selected is:

A. $\frac{5}{14}$ ✓

B. $\frac{7}{12}$

C. $\frac{3}{14}$

D. $\frac{5}{28}$

Q14 Mathematics

If $x : y = 3 : 5$, then the value of $\frac{5x - 3y}{10x + 6y}$ is:

A. 1

B. 2

C. 0 ✓

D. -1

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Q15 Mathematics

If $tan\theta = \frac{12}{5}$, then $\frac{1+sin\theta}{1-sin\theta}$ is:

A. 22

B. 24

C. 25 ✓

D. 20

Q16 Mathematics

If $\sqrt{225} = 15$ then the value of $\sqrt{2.25} + \sqrt{0.0225} + \sqrt{0.000225}$ is:

A. 1.665 ✓

B. 1.675

C. 1.689

D. 1.645

Q17 Mathematics

If the number 2564S4 is exactly divisible by 4, then which of the following digit cannot be in the place of S ?

A. 2

B. 6

C. 8

D. 5 ✓

Q18 Mathematics

The ratio in which point (4, 5) divides the line joining two points (2, 3) and (7, 8) is:

A. 2 : 3 ✓

B. 1 : 2

C. 4 : 5

D. 3 : 4

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Q19 Mathematics

If 35% of A's income is equal to 40% of B's income. Then the ratio of the incomes of A and B is:

A. $8 : 7$ ✓

B. $7 : 8$

C. $4 : 5$

D. $5 : 4$

Q20 Mathematics

The length and breadth of a rectangular field are in the ratio of 6 : 5. If the perimeter of the field is 110 m, then what will be the breadth (in m)?

A. 30

B. 20

C. 15

D. 25 ✓

Q21 Mathematics

An urn contains 10 black and 5 white balls. Two balls are drawn from the urn one after the other without replacement. What is the probability that both drawn balls are black?

A. $\frac{2}{7}$

B. $\frac{3}{7}$ ✓

C. $\frac{4}{7}$

D. $\frac{5}{7}$

Q22 Mathematics

If $\frac{2160}{\sqrt{x}} = 240$ then the value of x is:

A. 100

B. 49

C. 81 ✓

D. 58

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Q23 Mathematics

If $\frac{a}{b} = 0.75$, then the value of $\frac{2a+b}{2a-b} + \frac{4}{9}$ is:

A. $\frac{41}{9}$

B. $\frac{43}{9}$

C. $\frac{47}{9}$

D. $\frac{49}{9}$ ✓

Q24 Mathematics

If $\frac{a}{b} = \frac{3}{2}$ and $\frac{b}{c} = \frac{3}{5}$, then the value of $\frac{a+b}{b+c}$ is:

A. $\frac{9}{11}$

B. $\frac{15}{16}$ ✓

C. $\frac{6}{11}$

D. $\frac{5}{16}$

Q25 Mathematics

In a town, the population increased from 1,85,500 to 2,22,600 in a decade. The average percentage increase of population per year is:

A. 3%

B. 9%

C. 5%

D. 2% ✓

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Q26 Mathematics

If the centroid of the triangle formed by the points (3, 5) (–7, 4) (10, –6) is at the point (k, 1), then the value of k is:

A. 2 ✓

B. 3

C. 4

D. 1

Q27 Mathematics

If $sin\theta + cos\theta = p$ and $sec\theta + cosec\theta = q$, then the value of $q(p^2 - 1)$ is:

A. p^2

B. $p^2 + 1$

C. $2p$ ✓

D. p

Q28 Mathematics

The HCF of two numbers is 37 and their LCM is 740. If one of the numbers is 148, then the other is:

A. 180

B. 190

C. 185 ✓

D. 195

Q29 Mathematics

The LCM of $\frac{2}{3}, \frac{4}{9}, \frac{7}{12}, \frac{3}{5}$ is:

A. 86

B. 94

C. 98

D. 84 ✓

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Q30 Mathematics

The selling price of 25 items is equal to the cost price of 20 items. What is the percentage of loss?

A. 20%

B. 23%

C. 21%

D. 25%

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If the number 2893#$ is divisible by 8 and 5, then one possible choice of the digits that come in the places of # and $ can be:

A. 2, 2

B. 0, 2

C. 0, 0

D. 2, 0 ✓

Q2 Mathematics

If the height of a pole is $6\sqrt{3}$ m and the length of its shadow is 6 m, then the angle of elevation of the sun is:

A. $0°$

B. $60°$ ✓

C. $30°$

D. $45°$

Q3 Mathematics

An orchard has 5776 trees and the arrangement of trees is such that there are as many rows as there are trees in a row. Then the number of rows is:

A. 56

B. 65

C. 76 ✓

D. 48

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Q4 Mathematics

In the triangle ABC, a = 25, b = 45 and c = 30. The value of cos A is:

A. $\frac{21}{27}$

B. $\frac{25}{27}$

C. $\frac{20}{27}$

D. $\frac{23}{27}$ ✓

Q5 Mathematics

The diagonal of a cube is $6\sqrt{2}$ cm . The surface area of the cube is:

A. $72\ cm^2$

B. $144\ cm^2$ ✓

C. $24\ cm^2$

D. $36\ cm^2$

Q6 Mathematics

The value of the variable x in the equation $3(5x + 2) - 4 = 2(1 - 4x)$ is:

A. 10

B. -1

C. 2

D. 0 ✓

Q7 Mathematics

If $2^x = 4^{y+1}$ and $3^y = 3^{x-9}$, then the respective values of x and y will be:

A. $(-16, 7)$

B. $(16, -7)$

C. $(7, 16)$

D. $(16, 7)$ ✓

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Q8 Mathematics

The value of $\left\{\left(2-\frac{1}{3}\right)+\left(\frac{2}{3}\times 1\frac{1}{5}\right)\right\}+\frac{3}{5}\times 2\frac{5}{7}$ is:

A. $4\frac{2}{27}$

B. $4\frac{2}{21}$ ✓

C. $2\frac{4}{21}$

D. $2\frac{4}{27}$

Q9 Mathematics

The intercepts made by the plane $3x-4y-2z=6$ with the coordinate axis are:

A. $2,\frac{3}{2},-3$

B. $-2,-\frac{3}{2},3$

C. $-2,\frac{3}{2},3$

D. $2,-\frac{3}{2},-3$ ✓

Q10 Mathematics

A profit of 25% is made when an article is sold for ₹750. The profit, if the article is sold for ₹660, will be:

A. 10% ✓

B. 8%

C. 12%

D. 15%

Q11 Mathematics

The LCM of two numbers is 126 and their HCF is 2. If one number is 18 then the other is:

A. 16

B. 9

C. 14 ✓

D. 12

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Q12 Mathematics

Raj is 60% more efficient than Sundar and Sundar can finish a certain task in 16 days. How many days will Raj alone take to complete the same task?

A. 8

B. 10 ✓

C. 12

D. $7\frac{1}{2}$

Q13 Mathematics

A train covers a distance of 35 km in 60 min. How long will it take to cover 105 km?

A. 90 min

B. 140 min

C. 120 min

D. 180 min ✓

Q14 Mathematics

Rama can finish a task in 50 days. He worked for 10 days then Ravi finished the remaining task alone in 32 days. How much time will Rama and Ravi take, working together, to finish the task?

A. $24\frac{2}{9}$ days

B. $22\frac{2}{9}$ days ✓

C. $22\frac{4}{9}$ days

D. $24\frac{1}{9}$ days

Q15 Mathematics

The ratio of simple interest earned by a certain amount at the rate of 5% for 6 years and 8% for 3 years is:

A. 5 : 4 ✓

B. 3 : 2

C. 2 : 3

D. 4 : 5

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Q16 Mathematics

A box contains 2 black, 6 green and 4 yellow balls. If 2 balls are picked up at random, the probability that both are green is:

A. $\frac{1}{22}$

B. $\frac{1}{6}$

C. $\frac{3}{11}$

D. $\frac{5}{22}$ ✓

Q17 Mathematics

The least number which when divided by 9, 16, 20 or 24 leaves 3 as remainder in each case is:

A. 717

B. 720

C. 723 ✓

D. 725

Q18 Mathematics

The value of $\left(3\frac{1}{7}+4\frac{3}{7}\right)+\frac{7}{6}$ is:

A. $\frac{432}{42}$

B. $\frac{367}{42}$ ✓

C. $\frac{267}{42}$

D. $\frac{342}{42}$

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Q19 Mathematics

A cyclist covers 650 m distance in 2 min 10 s. The speed of the cyclist in km/h is:

A. 16

B. 18 ✓

C. 5

D. 12

Q20 Mathematics

At what rate of compound interest per annum will a sum of ₹1,500 become ₹1,591.35 in 2 years?

A. 3% ✓

B. 2%

C. 4%

D. 5%

Q21 Mathematics

A cylinder has 14 cm height and 660 cm^2 curved surface area. The volume of the cylinder is:

(Take $\pi = \frac{22}{7}$)

A. 2475 cm^3 ✓

B. 2225 cm^3

C. 2425 cm^3

D. 2275 cm^3

Q22 Mathematics

The least square number that is exactly divisible by 4, 5, 8, 16 and 32 is:

A. 1600 ✓

B. 900

C. 3600

D. 400

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Q23 Mathematics

The square root of $5\frac{44}{49}$ is:

A. $\frac{16}{7}$

B. $\frac{12}{7}$

C. $\frac{15}{7}$

D. $\frac{17}{7}$ ✓

Q24 Mathematics

A dice is cast twice, and the sum of the appearing numbers is 10. Then the probability that the number 5 has appeared at least once is:

A. $\frac{1}{4}$

B. $\frac{1}{3}$ ✓

C. $\frac{1}{2}$

D. $\frac{2}{3}$

Q25 Mathematics

Ravi's salary is 20% more than Mohan's salary. If Mohan's salary is ₹1,600 then Ravi's salary will be:

A. ₹1,890

B. ₹1,920 ✓

C. ₹1,750

D. ₹1,800

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Q26 Mathematics

A bought a horse for ₹4,500. He sold it to B at a profit of 5%. B sold it to C at a gain of 20%. How much is the amount paid by C to purchase the horse?

A. ₹5,520

B. ₹5,240

C. ₹5,430

D. ₹5,670 ✓

Q27 Mathematics

The value of $18\left[4-3\left\{6-\left(8\times\frac{1}{2}\right)\right\}\right]$ is:

A. 20

B. –36 ✓

C. 16

D. 36

Q28 Mathematics

The equation of a straight line passing through (–2, 5) and (1, 3) is:

A. $3x-2y-11=0$

B. $2x-3y-19=0$

C. $3x+2y+19=0$

D. $2x+3y-11=0$ ✓

Q29 Mathematics

The value of $(0.2)^3-(0.02)^3$ is:

A. 0.009992

B. 0.002992

C. 0.007992 ✓

D. 0.001002

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Q30 Mathematics

The simple interest on ₹10,000 for 6 months at the rate of 5 paise per rupee per month is:

A. ₹3,000 ✓

B. ₹1,000

C. ₹2,000

D. ₹1,500

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The HCF of 156, 455 and 1183 is:

A. 3

B. 17

C. 7

D. 13 ✓

Q2 Mathematics

The LCM of two prime numbers x and y (x > y) is 119. The value of 3y – x is:

A. 4 ✓

B. 6

C. 8

D. 2

Q3 Mathematics

If $\sin A = \frac{4}{\sqrt{17}}$ then $\tan 2A = ?$ $(0° < A < 90°)$

A. $-\frac{8}{15}$ ✓

B. $-\frac{4}{15}$

C. $-\frac{7}{15}$

D. $-\frac{21}{15}$

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Q4 Mathematics

The sum of the salaries of A and B together is ₹4300. A spends 95% of his salary and B, 80% of his salary. If their savings are the same, what is A's salary?

A. ₹3440 ✓

B. ₹3430

C. ₹3445

D. ₹3442

Q5 Mathematics

If $\frac{a}{b} = \frac{b}{c} = \frac{c}{d}$, then $\frac{b^3+c^3+d^3}{a^3+b^3+c^3}$ will be equal to:

A. $\frac{d}{c}$

B. $\frac{d}{a}$ ✓

C. $\frac{b}{d}$

D. $\frac{a}{d}$

Q6 Mathematics

If $\text{cosec}A - \cot A = 3$ then $\text{cosec}A + \cot A = ?$

A. $\frac{1}{5}$

B. $\frac{1}{3}$ ✓

C. $\frac{1}{2}$

D. $\frac{3}{2}$

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Q7 Mathematics

If the cost price of 19 books is equal to the selling price of 25 books, the percentage loss is:

A. 22%

B. 24% ✓

C. 25%

D. 27%

Q8 Mathematics

If one angle of a parallelogram is 12° less than twice the smallest angle of the same parallelogram, then the largest angle of the parallelogram is:

A. 116° ✓

B. 86°

C. 106°

D. 136°

Q9 Mathematics

Solve the given equation.

$0.5 \times 0.5 - 0.5 \div 5 \div 0.5 = ?$

A. 0.05 ✓

B. 0.50

C. 0.25

D. 0.025

Q10 Mathematics

If $x - y = 1$, then the value of $x^3 - y^3 - 3xy$ will be:

A. 0

B. 2

C. 1 ✓

D. -1

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Q11 Mathematics

A bus is travelling with $\frac{7}{8}$ of its actual speed to cover 42 km in 1 h 16 min. Find the actual speed of the bus.

A. 35 km/h

B. 48 km/h

C. 31 km/h

D. 30 km/h

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q12 Mathematics

If the annual rate of simple interest increases from 8% to $12\frac{1}{2}$%, a person's yearly income from interest increases by ₹369 then what is the principal amount of his investment?

A. ₹8,100

B. ₹8,200 ✓

C. ₹8,150

D. ₹8,500

Q13 Mathematics

If with simple interest, an amount doubles in 5 years, how many times of the original amount, will it be after 8 years with same rate of simple interest?

A. $2\frac{1}{5}$ times

B. $2\frac{3}{5}$ times ✓

C. $3\frac{2}{5}$ times

D. $3\frac{3}{5}$ times

Q14 Mathematics

Rama packs 36 boxes in 1 h. Her sister needs 3 h to pack the same number. How much time will they together take to pack these 36 boxes?

A. 45 min ✓

B. 40 min

C. 38 min

D. 42 min

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Q15 Mathematics

The ratio of two numbers is $3 : 5$ and their LCM is 105. What is the difference between the numbers?

A. 4

B. 10

C. 7

D. 14 ✓

Q16 Mathematics

A person invested $\frac{1}{4}$ of his capital at $3\frac{1}{2}\%$, $\frac{1}{3}$ at $7\frac{1}{2}\%$ and the remaining at 8% simple interest. If the amount of the yearly simple interest is ₹2,576 then what is the amount of the capital?

A. ₹39500

B. ₹27600

C. ₹38400 ✓

D. ₹36800

Q17 Mathematics

How many factors of $2^7 \times 3^4 \times 5^3 \times 7$ are even?

A. 84

B. 40

C. 280 ✓

D. 320

Q18 Mathematics

The value of $\frac{1-x^4}{1+x} \div \frac{1+x^2}{x} \times \frac{1}{x(x-1)}$ is:

(if x is not equal to 0, –1, 1)

A. 1

B. 0

C. 2

D. –1 ✓

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Q19 Mathematics

If $2.5x = 0.05y$, then $\frac{y-x}{y+x} = ?$

A. $\frac{49}{50}$

B. $\frac{19}{51}$

C. $\frac{49}{51}$ ✓

D. $\frac{19}{50}$

Q20 Mathematics

The value of $\frac{\frac{8}{3} \div \frac{3}{5} \times \frac{7}{5}}{\frac{5}{3} \div \frac{5}{7} \times \frac{8}{9}} \div 9$ is:

A. $\frac{1}{3}$ ✓

B. $\frac{3}{5}$

C. $\frac{1}{5}$

D. $\frac{2}{3}$

Q21 Mathematics

Two concentric circles drawn with the radius of inner circle 6cm and outer circle radius 50% more than inner circle. What is the area of the annulus formed between two circles?

A. $\frac{990}{7}\ cm^2$ ✓

B. $990\ cm^2$

C. $\frac{900}{7}\ cm^2$

D. $\frac{890}{7}\ cm^2$

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Q22 Mathematics

In a class, the ratio of girls and boys is $13:12$. Find the percentage of the girls in the class.

A. 48%

B. 25%

C. 13%

D. 52% ✓

Q23 Mathematics

2 men and 3 women can earn ₹49 in 7 days. 3 men and 6 women can earn ₹96 in 8 days. In what time 1 man and 1 woman earn ₹27?

A. 9 days ✓

B. 8 days

C. 10 days

D. 7 days

Q24 Mathematics

The number $0.12\overline{464}$ in the form $\frac{p}{q}$ is equal to:

A. $\frac{67}{4999}$

B. $\frac{617}{4950}$ ✓

C. $\frac{117}{1950}$

D. $\frac{17}{950}$

Q25 Mathematics

The greatest number of four digits which is divisible by 18, 25, 45 and 55 is:

A. 9900 ✓

B. 9940

C. 9500

D. 9950

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Q26 Mathematics

Calculate the mean for the following data.

5.2, 13.3, 17.5, 19.5, 21.4

A. 15.50

B. 15.38 ✓

C. 15.20

D. 15.68

Q27 Mathematics

Calculate the standard deviation for the following data.

3, 4, 5, 6, 7

A. 2

B. $\sqrt{6}$

C. $\sqrt{3}$

D. $\sqrt{2}$ ✓

Q28 Mathematics

If each side of a rectangle is increased by 25%, then its area will increase by:

A. $54\frac{1}{4}\%$

B. $56\frac{1}{4}\%$ ✓

C. $55\frac{1}{4}\%$

D. $60\frac{1}{4}\%$

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Q29 Mathematics

Two regular polygons have the same number of sides. Their lengths are in the ratio $7:5$ and the area of the larger polygon is $1127\ \text{cm}^2$. Find the area of the smaller polygon.

A. $575\ \text{cm}^2$ ✓

B. $585\ \text{cm}^2$

C. $565\ \text{cm}^2$

D. $550\ \text{cm}^2$

Q30 Mathematics

Find the remainder when $11^9 + 7$ is divided by 10.

A. 9

B. 7

C. 1

D. 8 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the LCM of $2^2 \times 3^3 \times 5 \times 7^2, 2^3 \times 3^2 \times 5^2 \times 7^4$ and $2 \times 3 \times 5^3 \times 7 \times 11$.

A. $2 \times 3 \times 5 \times 7 \times 11$

B. $2^3 \times 3^3 \times 5^3 \times 7^4$

C. $2^3 \times 3^3 \times 5^3 \times 7^4 \times 11$ ✓

D. $2 \times 3 \times 5 \times 7$

Q2 Mathematics

A and B are two alloys of gold and copper prepared by mixing the metals in the ratio of 7 : 2 and 7 : 11, respectively. Equal quantities of the alloys are melted to form a third alloy, C. If the amount of copper in C is 10 kg, then what is the amount of gold in C?

A. 10 kg

B. 8 kg

C. 12 kg

D. 14 kg ✓

Q3 Mathematics

Find the value of 3 times of 3 tenths of 3 hundredths of 3 thousandths of 30.

A. 0.00243 ✓

B. 0.0243

C. 0.000243

D. 0.0000243

Q4 Mathematics

A sum of ₹2,700 is lent out in two parts in such a way that, the simple interest on one part at 15% for 4 years is equal to the simple interest on the second part at 10% for 6 years. The part of the sum lent out at 15% is:

A. ₹1,150

B. ₹1,250

C. ₹1,350 ✓

D. ₹1,450

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Q5 Mathematics

What will be the remainder when 17^{200} is divided by 18?

A. 1 ✓

B. 16

C. 2

D. 17

Q6 Mathematics

Ravi earned 50% more money than Ajay. Ajay earned 30% less money than Madhan. By what percentage did Ravi earn more money than Madhan?

A. 5% ✓

B. 11%

C. 3%

D. 9%

Q7 Mathematics

Divide ₹1,162 among A, B and C in the ratio of 35 : 28 : 20.

A. A = ₹512, B = ₹385 and C = ₹265

B. A = ₹490, B = ₹392 and C = ₹280 ✓

C. A = ₹512, B = ₹365 and C = ₹285

D. A = ₹450, B = ₹425 and C = ₹327

Q8 Mathematics

The mean of 5 observations is 20. If another observation is added, then the mean increases by 2. What is the value of the 6^{th} observation that is added?

A. 22

B. 32 ✓

C. 42

D. 52

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Q9 Mathematics

A man standing at a point 'P' is watching the top of a tower, marked by the point 'S'. He walks a distance of $40\sqrt{3}$ m towards the foot of the tower to point 'Q'. From 'Q' the angle of elevation of 'S' is 60°. Find the angle of elevation of 'S' from 'P', if the height of the tower is 60 m.

A. 60°

B. 30° ✓

C. 75°

D. 45°

Q10 Mathematics

On selling a chair at 5% loss and a table at 15% gain, a man gains ₹300. If he sells the chair at 5% gain and the table at 5% gain, then he gains ₹180. The actual cost of the table is:

A. ₹1,600

B. ₹2,400 ✓

C. ₹2,200

D. ₹1,800

Q11 Mathematics

If $\cos(x+y) = \frac{1}{2}$ and $\sin(x-y) = 0$, where x and y are positive acute angles and $x \geq y$, then x and y are:

A. 90° and 30°

B. 60° and 60°

C. 30° and 30° ✓

D. 60° and 45°

Q12 Mathematics

A and B working together can finish a task in 18 days. B and C working together can finish it in 24 days. A and C working together can finish it in 36 days. In how many days will A, B and C finish the same task, working separately?

A. $A = 48,\ B = 144$ and $C = 28\frac{4}{5}$

B. $A = 28\frac{4}{5},\ B = 144$ and $C = 48$

C. $A = 48,\ B = 28\frac{4}{5}$ and $C = 144$ ✓

D. $A = 28\frac{4}{5},\ B = 48$ and $C = 144$

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Q13 Mathematics

From certain number of apples, a man sells $\frac{1}{3}$ of the apples to the first customer. He sells $\frac{1}{2}$ of the remaining apples to the second customer, and $\frac{1}{3}$ of the remaining apples plus 5 to the third customer. He then finds himself left with 3 apples. How many apples did the man have initially?

A. 24

B. 30

C. 36 ✓

D. 18

Q14 Mathematics

A train 'R' leaves Chennai at 5 a.m. and reaches Vijayawada at 12 p.m. Another train 'S' leaves Vijayawada at 7 a.m. and reaches Chennai at 5:30 p.m. At what time do the two trains cross each other?

A. 12 p.m.

B. 12:25 p.m.

C. 10 a.m. ✓

D. 9:36 a.m.

Q15 Mathematics

What is the value of x in following equation?

$$8.5 - \left\{5\frac{1}{2} - \left(7\frac{1}{2} + 2.8 \div x\right)\right\} \times 4.25 \div (0.2)^2 = 306$$

A. 3.08

B. 3.5 ✓

C. 2.5

D. 1.8

Q16 Mathematics

Find the least value of x where $7x5462$ is divisible by 9.

A. 6

B. 3 ✓

C. 5

D. 4

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Q17 Mathematics

The ratio of the income of A to B is 5 : 4, and the ratio of their respective expenditure is 3 : 2. If, at the end of the year, each saves ₹1,600, then the income of A is:

A. ₹4,400

B. ₹3,600

C. ₹4,000 ✓

D. ₹3,400

Q18 Mathematics

Two men start walking together to a certain destination, one at the speed of 6 km/h, and the other at 7.5 km/h. The latter arrives 1 h 4 min before the former. The distance covered is:

A. 38 km

B. 44 km

C. 32 km ✓

D. 24 km

Q19 Mathematics

If $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, then the value of $x^2 + y^2$ is:

A. 14 ✓

B. 10

C. 13

D. 15

Q20 Mathematics

The LCM of two prime numbers x and y $(x > y)$ is 319. The value of $2x - 5y$ is:

A. 4

B. 2

C. 1

D. 3 ✓

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Q21 Mathematics

The value of $\frac{\sqrt{625}}{11} \times \frac{14}{\sqrt{25}} \times \frac{11}{\sqrt{196}}$ is:

A. 9

B. 10

C. 7

D. 5 ✓

Q22 Mathematics

'n' number of persons stand on the circumference of a circle at distinct points. Each possible pair of persons, not standing next to each other, sings a two-minute song, one pair after the other. If the total time taken for singing is 40 minutes, then what is the value of 'n'?

A. Six

B. Eight ✓

C. Five

D. Seven

Q23 Mathematics

Four circles of radius r cm are placed such a way that their centres form a square. Find the ratio of the area of the square (formed by the centres of the circles) to the area of the rhombus (formed by the touching points of the circles).

A. $(4-\pi) : 1$

B. $4 : 1$

C. $\pi : 1$

D. $2 : 1$ ✓

Q24 Mathematics

The sum of two angles $\angle A$ and $\angle B$ of a triangle ΔABC is equal to its third angle. Find the measure of the third angle?

A. 100°

B. 60°

C. 90° ✓

D. 50°

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Q25 Mathematics

If $\sin A + \sin B = x$ and $\cos A + \cos B = y$, then $\cos(A - B) = ?$

A. $\frac{x^2 + y^2 + 2}{2}$

B. $\frac{x^2 - y^2 + 2}{2}$

C. $\frac{x^2 - y^2 - 2}{2}$

D. $\frac{x^2 + y^2 - 2}{2}$ ✓

Q26 Mathematics

A sphere of radius 10 cm is melted and 'n' number of small spheres of radius 2.5 cm are formed.

What is the value of n?

A. 32

B. 64 ✓

C. 8

D. 16

Q27 Mathematics

$\frac{1}{10}$ of a pole is coloured red, $\frac{1}{20}$ is white, $\frac{1}{30}$ is blue, $\frac{1}{40}$ is black and the rest is green. If the length of the green portion of the pole is 4.75 m, then the length of the pole is:

A. 8 m

B. 6 m ✓

C. 10 m

D. 12 m

Q28 Mathematics

Find the surface area of a cuboid that is 16 m long, 14 m broad and 7 m high.

A. 866 m^2

B. 434 m^2

C. 1568 m^2

D. 868 m^2 ✓

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Q29 Mathematics

If the radius of a circle is reduced by 15%, then its area is reduced by:

A. 17.75%

B. 12.75%

C. 17%

D. 27.75% ✓

Q30 Mathematics

Find the simple interest on ₹3,000 at $6\frac{1}{4}\%$ p.a. for the period from 5 Feb 2005 to 18 April 2005, both dates included.

A. ₹40

B. ₹37.50 ✓

C. ₹35.50

D. ₹42.80

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Divide ₹20,609 between A and B, such that the amount (in ₹) of A after 7 years is equal to the amount (in ₹) of B after 9 years, if the interest being compounded yearly at 3% per annum.

A. A = ₹10,609, B = ₹10,000 ✓

B. A = ₹10,601, B = ₹10,008

C. A = ₹10,605, B = ₹10,004

D. A = ₹10,509, B = ₹10,100

Q2 Mathematics

The values of the mode and the mean are 25.2 and 27.5 respectively in a moderately asymmetrical distribution. Find the value of the median of the distribution.

A. 26.73 ✓

B. 26.20

C. 26.75

D. 26.70

Q3 Mathematics

If $a - 5 = b$, then what is the value of $|a - b| + |b - a|$?

A. 10 ✓

B. 5

C. –5

D. 0

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Q4 Mathematics

The selling price of 150 items is equal to the cost price of 125 items. What will be the percentage loss?

A. $15\frac{1}{3}$

B. $16\frac{1}{3}$

C. $16\frac{2}{3}$ ✓

D. $11\frac{1}{9}$

Q5 Mathematics

Walking at the rate of 3 km/h a man covers a certain distance in 8 hours. If the man runs at a speed of 16 km/h, then how much time will he take to cover the same distance?

A. 2 hours

B. 2.5 hours

C. 1.5 hours ✓

D. 1 hour

Q6 Mathematics

A car covers a distance of 600 m in 5 min. What is the speed of car?

A. 8.2 km/h

B. 8.5 km/h

C. 9.2 km/h

D. 7.2 km/h ✓

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Q7 Mathematics

Find the value of $\sqrt{58\frac{7}{9}}$

A. $7\frac{2}{3}$ ✓

B. $2\frac{7}{9}$

C. $7\frac{7}{9}$

D. $2\frac{2}{3}$

Q8 Mathematics

If $\left(a^2+\frac{1}{a^2}\right)=18$ then find $\left(a-\frac{1}{a}\right)$

A. 3

B. 5

C. 2

D. 4 ✓

Q9 Mathematics

Calculate the mean for following set of values -

2.2, 4.2, 6.4, 8.3, 10.5

A. 6.32 ✓

B. 7

C. 6.12

D. 6.50

Q10 Mathematics

Which of the following is a prime number?

A. 213

B. 123

C. 173 ✓

D. 143

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Q11 Mathematics

If the difference between the compound interest and the simple interest on a certain sum of money for 2 years at 5% per annum is ₹16.32, find the sum (in ₹).

A. 6,526

B. 6,528 ✓

C. 6,529

D. 6,538

Q12 Mathematics

A and B can complete a piece of work in 56 and 70 days respectively. They began the work together but A left after some days and B finished the remaining work in 34 days. After how many days did A leave?

A. 16 ✓

B. 9

C. 12

D. 15

Q13 Mathematics

Simplify.

$$\frac{1}{5.8}+\frac{1}{8.11}+\frac{1}{11.14}+\frac{1}{14.17}$$

A. $\frac{24}{85}$

B. $\frac{4}{17}$

C. $\frac{4}{85}$ ✓

D. $\frac{2}{85}$

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Q14 Mathematics

Find the number of sides of a regular polygon if each interior angle is 165°.

A. 24 ✓

B. 20

C. 26

D. 22

Q15 Mathematics

What is the value of $\sin 15^\circ$?

A. $\frac{\sqrt{6}-\sqrt{2}}{2}$

B. $\frac{\sqrt{6}-\sqrt{2}}{3}$

C. $\frac{\sqrt{6}-\sqrt{2}}{4}$ ✓

D. $\frac{\sqrt{3}-\sqrt{2}}{4}$

Q16 Mathematics

A circle of radius 8 cm circumscribed a square. The length of the side of the square is:

A. $2\sqrt{2}$ cm

B. $6\sqrt{2}$ cm

C. $8\sqrt{2}$ cm ✓

D. $4\sqrt{2}$ cm

Q17 Mathematics

The domain of cosec x is:

A. $R - \{n\pi | n \in Z\}$ ✓

B. $R - \{2n\pi | n \in Z\}$

C. $\{n\pi | n \in Z\}$

D. $\{2n\pi | n \in Z\}$

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Q18 Mathematics

If $2x + y = 15, y + 2z = 17$ and $x + 2y = 9$, then the value of $4x + 3y + z = ?$

A. 37

B. 40

C. 39 ✓

D. 38

Q19 Mathematics

If a sum invested at simple interest, triples itself in 8 years, how many times of itself will it be in 12 years?

A. 4 times ✓

B. 3.5 times

C. 3 times

D. 5 times

Q20 Mathematics

Find the value of ab, if $a + b = 5$ and $a^2 - b^2 = 75$

A. -50 ✓

B. 10

C. 50

D. 25

Q21 Mathematics

Find the value of x.

$$1\frac{1}{5} - 3\frac{2}{4} \div 1\frac{3}{4} \div \left(x + 3\frac{1}{8}\right) \div 1\frac{1}{7} = 1$$

A. $x = 7\frac{5}{8}$

B. $x = 3\frac{3}{8}$

C. $x = 5\frac{5}{8}$ ✓

D. $x = 3\frac{5}{8}$

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Q22 Mathematics

82% of a number is 738. What is 90% of that number?

A. 802

B. 900

C. 820

D. 810 ✓

Q23 Mathematics

If x = 25 and y = 13 then find:

$\sqrt{x^2 - 2xy + y^2}$

A. 12 ✓

B. 38

C. 13

D. 10

Q24 Mathematics

When 106 is subtracted from a number, it reduces to its 47%. What is 11.5% of that number?

A. 31

B. 13

C. 23 ✓

D. 32

Q25 Mathematics

Find the value of 3(x+y) if $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$

A. 12 ✓

B. 10

C. 8

D. 13

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Q26 Mathematics

If $p : q = 9 : 2$, then find the ratio $(4p + 7q) : (4p - 7q)$

A. $11 : 6$

B. $11 : 13$

C. $25 : 11$ ✓

D. $50 : 13$

Q27 Mathematics

A square park is surrounded by a path of uniform width 1.5 m all around it. The area of the path is 225 m^2. Find the perimeter of the park.

A. 144.5 m

B. 143 m

C. 144 m ✓

D. 142 m

Q28 Mathematics

Find the second term in a sequence of numbers that leaves the remainders 1, 2 and 7 when divided by 2, 3 and 8 respectively.

A. 48

B. 38

C. 47 ✓

D. 37

Q29 Mathematics

Find the area of a triangle whose sides are 5 cm, 7 cm and 11 cm.

A. 12.50 cm^2

B. 12.97 cm^2 ✓

C. 12.30 cm^2

D. 12.27 cm^2

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Q30 Mathematics

What would be the highest value of X in the given equation?

$5Y6 + 6X7 + 3Z8 = 1511$

A. 6

B. 9 ✓

C. 7

D. 5

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Sunil and Kamal took loan of ₹40,000 each for 1 year 6 months from a moneylender who charged simple interest from Sunil @ 11% per annum and compound interest from Kamal @ 10% per annum compounded semi-annually. Who paid more interest and by what amount?

A. Kamal paid ₹195 more

B. Sunil paid ₹295 more ✓

C. They paid equal interest

D. Kamal paid ₹305 more

Q2 Mathematics

If $a^{2x} = b, b^{2y} = c, c^{2z} = a$ then the value of xyz is:

A. 1

B. 8

C. 0

D. $\frac{1}{8}$ ✓

Q3 Mathematics

A and B together can complete a task in 36 days. If B stops working after 30 days, the task will be completed in total 40 days. A alone can complete the task in:

A. 60 days ✓

B. 10 days

C. 50 days

D. 66 days

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Q4 Mathematics

Anupam and Vineet standing together started running in opposite direction on 2 km long circular racing track. They ran at the speeds of 9 km/h and 11 km/h respectively. After how much time will they meet on the track?

A. 6 min ✓

B. 12 min

C. 10 min

D. 20 min

Q5 Mathematics

If A : B = 2 : 3, B : C = 2 : 3 and C : D = 3 : 4, then A : D = ?

A. 3 : 1

B. 2 : 4

C. 1 : 3 ✓

D. 1 : 2

Q6 Mathematics

What is the value of $\cot(15^\circ) - \tan(15^\circ)$?

A. $\frac{\sqrt{3}}{2}$

B. 2

C. $2\sqrt{3}$ ✓

D. 4

Q7 Mathematics

40% of the first number is 12 and 50% of the second number is 24. The ratio of the first number to the second number is:

A. 4 : 5

B. 8 : 5

C. 1 : 2

D. 5 : 8 ✓

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Q8 Mathematics

A shopkeeper incurred a loss of 10% by selling an item for ₹1,980. At what price (in ₹) should he sell that item to gain 15%?

A. 2,475

B. 2,193

C. 2,530 ✓

D. 2,005

Q9 Mathematics

Umesh and Kapil donated ₹750 and ₹975 respectively. The ratio of the amount of donation by Umesh to that by Kapil is:

A. 1 : 3

B. 10 : 13 ✓

C. 13 : 10

D. 3 : 1

Q10 Mathematics

A number when multiplied by $\frac{6}{5}$ gives $\frac{108}{125}$. The number is:

A. $\frac{18}{25}$ ✓

B. $\frac{625}{648}$

C. $\frac{648}{625}$

D. $\frac{25}{18}$

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Q11 Mathematics

A wheel completes 21000 revolutions covering a distance of 66 km. Find the radius of the wheel.

A. 1 m

B. 2 m

C. $\frac{1}{2}$ km

D. $\frac{1}{2}$ m ✓

Q12 Mathematics

A man can complete a work in 20 days and a woman can complete the same work in 45 days. In how many days 2 men and 3 women can complete the same work?

A. 13 days

B. 6 days ✓

C. 5 days

D. 25 days

Q13 Mathematics

Simplify the following.

$$\left(\frac{\tan 40^\circ}{\text{cosec } 50^\circ}\right)^2 + \left(\frac{\cot 40^\circ}{\sec 50^\circ}\right)^2$$

A. 0

B. 2

C. 4

D. 1 ✓

Q14 Mathematics

The mean of the squares of first ten natural numbers is:

A. $\frac{77}{2}$ ✓

B. 385

C. 231

D. $\frac{11}{2}$

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Q15 Mathematics

A retailer buys a bag containing 54 kg oranges at ₹25 per kg. Later upon sorting he finds that 4 kg oranges are rotten, he throws them and sells the remaining ones at ₹36 per kg. Find his profit percent.

A. 25%

B. 30%

C. $33\frac{1}{3}\%$ ✓

D. 40%

Q16 Mathematics

Simplify the following.

$$\frac{0.0625}{0.05}$$

A. 1.25 ✓

B. 125

C. 0.0125

D. 0.125

Q17 Mathematics

If the perimeter and area of a square are numerically equal then the side of the square is:

A. 4 units ✓

B. 2 units

C. 1 unit

D. 16 units

Q18 Mathematics

Simplify the following.

$98 \div 7 + 7 \times 3 - 22$

A. 13 ✓

B. -1

C. 4.9

D. -17

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Q19 Mathematics

The descending order of the fractions $\frac{2}{3}, \frac{1}{6}, \frac{1}{5}, \frac{3}{7}$ is:

A. $\frac{3}{7}, \frac{2}{3}, \frac{1}{6}, \frac{1}{5}$

B. $\frac{3}{7}, \frac{1}{6}, \frac{1}{5}, \frac{2}{3}$

C. $\frac{2}{3}, \frac{3}{7}, \frac{1}{5}, \frac{1}{6}$ ✓

D. $\frac{1}{6}, \frac{1}{5}, \frac{3}{7}, \frac{2}{3}$

Q20 Mathematics

If $\cos x - 3\sin x = \sqrt{3}\ \sin x$, then the value of $\tan x$ is:

A. $\frac{3-\sqrt{3}}{6}$ ✓

B. $3-\sqrt{3}$

C. $\sqrt{3}$

D. $3+\sqrt{3}$

Q21 Mathematics

If polynomials $4x^3 + ax^2 - 3x + 1$ and $x^4 + x^3 - x^2 + 6$ leave the same remainder when each is divided by (x+1), then the value of a is:

A. -1

B. 9

C. 4

D. 5 ✓

Q22 Mathematics

LCM of 14, 21, 25 and 70 is:

A. 105

B. 75

C. 210

D. 1050 ✓

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Q23 Mathematics

Which of the following equations represent a line parallel to y-axis?

A. $y = 3$

B. $x + 3 = 4 - 2x$ ✓

C. $2x + y = 0$

D. $y - 2 = 1$

Q24 Mathematics

Find the greatest number that divides 58, 75, and 97 leaving 4, 3 and 7 respectively as remainders.

A. 14

B. 18 ✓

C. 34

D. 2

Q25 Mathematics

What will be the simple interest on ₹10,000 at 12% per annum for 5 years?

A. ₹5,000

B. ₹6,000 ✓

C. ₹1,700

D. ₹500

Q26 Mathematics

If the mean of six observations 5, 7, 9, α, 11 and 12 is 9, then the value of α is :

A. 12

B. 15

C. 16

D. 10 ✓

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Q27 Mathematics

Solve the following.

$$\frac{\sqrt{196}}{7} \times \frac{\sqrt{441}}{7} \times \frac{120}{\sqrt{225}} = ?$$

A. 54

B. 58

C. 84

D. 48 ✓

Q28 Mathematics

By how much is $\frac{1}{6}$ th of 432 smaller than $\frac{3}{4}$ th of 216?

A. 162

B. 72

C. 90 ✓

D. –90

Q29 Mathematics

If the angles of a triangle are in the ratio 4 : 5 : 6, find the smallest angle (in °).

A. 48 ✓

B. 36

C. 24

D. 60

Q30 Mathematics

Simplify the following.

$$(225 \div 25 - 10) \times 5 + 2 - 7 \times 3$$

A. –24 ✓

B. 84

C. 0

D. 56

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

What is the sub-duplicate ratio of the given pair of numbers?

625 : 64

A. 4 : 5

B. 25 : 16

C. 16 : 25

D. 25 : 8 ✓

Q2 Mathematics

What is the difference between the largest and the smallest single-digit prime numbers?

A. 8

B. 6

C. 7

D. 5 ✓

Q3 Mathematics

What is the value of 99^3?

A. 970499

B. 970389

C. 970289

D. 970299 ✓

Q4 Mathematics

If $2x + 3y = 23$ and $x = 4$, then what is the value of y?

A. 3

B. 6

C. 4

D. 5 ✓

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Q5 Mathematics

What is the HCF of $\frac{15}{4}$, $\frac{10}{3}$ and $\frac{35}{6}$?

A. $\frac{5}{12}$ ✓

B. $\frac{5250}{72}$

C. 5

D. $\frac{5}{24}$

Q6 Mathematics

The least number that should be subtracted from 0.000845 to make it a perfect square is:

A. 0.000006

B. 0.000005

C. 0.000001

D. 0.000004 ✓

Q7 Mathematics

$32 \div 2 \div 2 \div 2 \div 2$ is equal to:

A. 2 ✓

B. 8

C. 16

D. 32

Q8 Mathematics

What is the simple interest (in ₹) on ₹4,000 for 5 years at the rate of 1 paisa per rupee per month?

A. ₹1,200

B. ₹2,400 ✓

C. ₹1,800

D. ₹600

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Q9 Mathematics

A man buys an article for ₹55.00 and sells it for ₹57.20. Find his gain percentage.

A. 6%

B. 4% ✓

C. 2%

D. 8%

Q10 Mathematics

If θ is an acute angle and $\tan\theta = \frac{40}{9}$, what is the value of $\operatorname{cosec}\theta$?

A. $\frac{41}{9}$

B. $\frac{9}{41}$

C. $\frac{41}{40}$ ✓

D. $\frac{40}{41}$

Q11 Mathematics

How much does one have to add to $\frac{4}{5}$ to obtain $\frac{5}{4}$?

A. $\frac{16}{25}$

B. $\frac{9}{16}$

C. $\frac{2}{5}$

D. $\frac{9}{20}$ ✓

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Q12 Mathematics

What is the HCF of 57, 67, 77 and 87?

A. 7

B. 3

C. 1 ✓

D. 11

Q13 Mathematics

An article when sold at a gain of 10% yields ₹150 more than when sold at a loss of 10%. Its cost price is:

A. ₹570

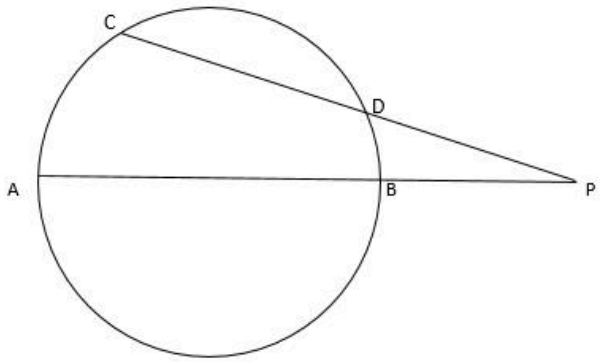
B. ₹577

C. ₹750 ✓

D. ₹735

Q14 Mathematics

In the given circle, diameter AB is extended to meet chord CD extended at P. If the lengths of the line segments AP, CP and DP are 12 cm, 8 cm and 6 cm, respectively, what is the length of the radius of the circle?



A. 6 cm

B. 2 cm

C. 4 cm ✓

D. 8 cm

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Q15 Mathematics

Identical square slabs are used to pave the floor of a room, 4.5 m long and 1.5 m broad. Find the minimum number of such slabs that will be needed to pave the floor.

A. 2

B. 5

C. 3 ✓

D. 10

Q16 Mathematics

What is the smallest natural number that must be added to 2000 for the sum to be a perfect square?

A. 20

B. 100

C. 500

D. 25 ✓

Q17 Mathematics

28 pipes are connected to a tank. Some of them pour water into the tank, whereas the rest drain water out of it. Each of the pipes that fill water can fill the empty tank in 14 hours, whereas any of the drainpipes can empty the filled tank in 35 hours. If all the pipes are opened simultaneously when the tank is empty and the tank is filled in 2.5 hours, how many of the pipes were drainpipes?

A. 15

B. 18

C. 16 ✓

D. 17

Q18 Mathematics

The variance of the seven observations

6, 7, 10, 12, 13, 8, 14 is:

A. 8.50

B. 8.29 ✓

C. 9

D. 9.25

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Q19 Mathematics

A sold an item to B at a gain of 25%, and B sold it to C at a loss of 12%. If C paid ₹231, then what was the cost price of the item for A?

A. ₹200

B. ₹220

C. ₹250

D. ₹210 ✓

Q20 Mathematics

A is twice as good a workman as B, and together they finish a work in 10 days. In how many days will A finish the work alone?

A. 5

B. 10

C. 15 ✓

D. 7

Q21 Mathematics

If the average of 6 positive integers is 45 and the difference between the largest and the smallest of these 6 numbers is 18, what is the maximum value possible for the largest of these 6 integers?

A. 63

B. 54

C. 60 ✓

D. 57

Q22 Mathematics

If $231 \times 326 = 75306$, then what is the value of 2.31×0.326?

A. 7.5306

B. 0.75306 ✓

C. 75.306

D. 0.075306

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Q23 Mathematics

A shopkeeper has 25 litres of oil in one can and 45 litres in another can. The maximum capacity (in litres) of a container that can measure the oil of either container an exact number of times is:

A. 3

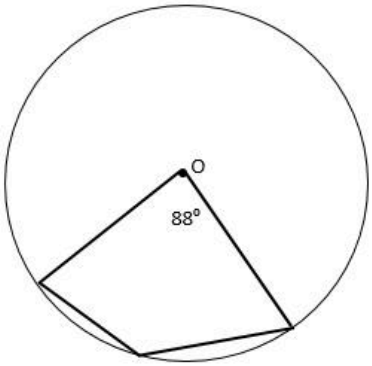
B. 5 ✓

C. 9

D. 1

Q24 Mathematics

In the given circle with centre O, the acute angle at the centre measures 88°. In the quadrilateral drawn inside the circle, what is the measure of the angle opposite to ∠O? [Figure is not drawn to scale.]



A. 136° ✓

B. 272°

C. 88°

D. 68°

Q25 Mathematics

3 litres of pure petrol is added to 13 litres of a mixture of petrol and ethanol containing 40% petrol. Find the percentage of ethanol in the resulting mixture.

A. 48.75% ✓

B. 49.25%

C. 48.25%

D. 48.50%

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Q26 Mathematics

The radius of a sphere, 'r', is equal to the radius of the base of a right circular cone. The total volume of the two shapes $= \frac{7}{3}\pi r^3$. If 'h' is the height of the cone, find $\frac{h}{r}$.

A. 4

B. 2

C. 3 ✓

D. 2.5

Q27 Mathematics

If $\sin\theta + \cos\theta = \frac{\sqrt{5}}{2}$, then find the positive value of $\sin\theta - \cos\theta$.

A. $\frac{\sqrt{3}}{2}$ ✓

B. $\frac{\sqrt{7}}{2}$

C. $\frac{3\sqrt{3}}{4}$

D. $\frac{7\sqrt{3}}{2}$

Q28 Mathematics

A truck travels for 14 hours and covers the first half of the distance at the speed of 36 km/h and the remaining distance at the speed of 48 km/h. What is the total distance travelled by the truck?

A. 528 km

B. 624 km

C. 576 km ✓

D. 540 km

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Q29 Mathematics

The ratio of three positive numbers is 1 : 3 : 4 and the sum of their squares is 2106. What is the largest of these three numbers?

A. 36 ✓

B. 32

C. 44

D. 40

Q30 Mathematics

The hypotenuse of a right isosceles triangle is $28\sqrt{2}$ cm. Find the area of the triangle.

A. $392\ cm^2$ ✓

B. $784\ cm^2$

C. $468\ cm^2$

D. $396\ cm^2$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the mean for the following data.

1.8, 7.5, 9.2, 12.1, 15.4

A. 9.5

B. 9.7

C. 9.8

D. 9.2 ✓

Q2 Mathematics

Rinki donates blood thrice in a year, each time 150 millilitres. How many litres of blood will he donate in 5 years?

A. 2.00 litres

B. 2.50 litres

C. 2.25 litres ✓

D. 2.75 litres

Q3 Mathematics

Find the value of $(x + y)^2$, if $x = \frac{\sqrt{2} + \sqrt{3}}{\sqrt{2} - \sqrt{3}}$ and $y = \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} + \sqrt{3}}$.

A. 36

B. 100 ✓

C. 25

D. 225

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Q4 Mathematics

Calculate the variance for the following data:

2, 5, 6, 8, 9

A. 3

B. 4

C. 6 ✓

D. 5

Q5 Mathematics

A man and a boy, together, can complete a task in 60 days. Their efficiency is in the ratio of 7 : 5. How many days will the boy alone take to complete the task?

A. 140

B. 138

C. 142

D. 144 ✓

Q6 Mathematics

If an equilateral triangle has an altitude of length $12\sqrt{5}$ cm, then the difference between the areas of the circumscribed circle and the inscribed circle is:

A. $246\,\pi\ \text{cm}^2$

B. $244\,\pi\ \text{cm}^2$

C. $242\,\pi\ \text{cm}^2$

D. $240\,\pi\ \text{cm}^2$ ✓

Q7 Mathematics

What would be the highest value of X in the given equation?

$7X5 + 2Y3 + 8Z7 = 1805$

A. 9 ✓

B. 7

C. 5

D. 0

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Q8 Mathematics

A sum of money doubles at simple interest in 5 years. In how many years will it become four times itself?

A. 11

B. 12

C. 15 ✓

D. 14

Q9 Mathematics

Find the least multiple of 13, which, on dividing by 4, 5, 6, 7 and 8, leaves a remainder 2 in each case.

A. 2824

B. 2522 ✓

C. 2142

D. 2422

Q10 Mathematics

If A exceeds B by 30% and B is less than C by 20%, then A : C is:

A. 25 : 26

B. 26 : 25 ✓

C. 25 : 52

D. 10 : 13

Q11 Mathematics

A, B and C complete a task in 8 days. A or B alone can complete the same task in 20 days. In how many days can C alone complete the same task?

A. 35

B. 30

C. 40 ✓

D. 45

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Q12 Mathematics

The difference between the circumference and the radius of a circle is 37 cm. The area of the circle is:

A. $152\ \text{cm}^2$

B. $154\ \text{cm}^2$ ✓

C. $151\ \text{cm}^2$

D. $153\ \text{cm}^2$

Q13 Mathematics

A woman sells 78 pencils and gets a profit equal to the selling price of 13 pencils. Her profit percentage is:

A. 17

B. 9

C. 20 ✓

D. 19

Q14 Mathematics

The third proportional to 35 and 15 is:

A. $\frac{4}{7}$

B. $\frac{45}{17}$

C. $\frac{5}{7}$

D. $\frac{45}{7}$ ✓

Q15 Mathematics

What is the area of the triangle formed by the coordinate axes and the line

$2x + 3y = 6$?

A. 3 sq. units ✓

B. 2 sq. units

C. 12 sq. units

D. 6 sq. units

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Q16 Mathematics

The number 0.1235235235 in the $\frac{p}{q}$ form is equal to:

A. $\frac{1}{12352}$

B. $\frac{127}{12352}$

C. $\frac{617}{4995}$ ✓

D. $\frac{100}{12525}$

Q17 Mathematics

The speed of three bikes is in the ratio of 3 : 4 : 5. The ratio of the time taken by these bikes to travel the same distance is:

A. 20 : 15 : 12 ✓

B. 20 : 17 : 12

C. 20 : 15 : 17

D. 20 : 15 : 13

Q18 Mathematics

Find the value of $\frac{(p-q)^3+(q-r)^3+(r-p)^3}{9(p-q)(q-r)(r-p)}$.

A. $\frac{2}{3}$

B. $\frac{1}{5}$

C. $\frac{1}{4}$

D. $\frac{1}{3}$ ✓

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Q19 Mathematics

Find the units digit in the product of $(127)^{153} \times (341)^{89}$.

A. 5

B. 3

C. 4

D. 7 ✓

Q20 Mathematics

From a circular sheet of radius 20 cm, three circles of radius 6 cm each are cut off. What is the ratio of the area of uncut to the area of the cut portion?

A. 73 : 37

B. 73 : 25

C. 73 : 23

D. 73 : 27 ✓

Q21 Mathematics

If $a^4 + b^4 = 17$ and $a + b = 1$, then the value of $a^2b^2 - 2ab$ is:

A. 4

B. 2

C. 8 ✓

D. 6

Q22 Mathematics

Find the value of $\tan(255^\circ)$

A. $\frac{\sqrt{3}}{2}$

B. $2\sqrt{3}$

C. $2 + \sqrt{3}$ ✓

D. $\sqrt{3}$

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Q23 Mathematics

If A's income is 60% less than that of B, then by what percentage is B's income more than that of A?

A. 100%

B. 150% ✓

C. 175%

D. 125%

Q24 Mathematics

Find the value of (?) in the following.

$(a^2-b^2) : (a^2-ab) :: (a^3+b^3) : ?$

A. $a(a^2+2b^2-ab)$

B. $a(a^2+b^2-2ab)$

C. $a(a^2+b^2-ab)$ ✓

D. $a^2(a+b-2ab)$

Q25 Mathematics

Simplify

$1 \div [1-2 \div \{3-4 \div (\overline{2+8} \div 5)\}] + 1:$

A. 2

B. 1

C. 0 ✓

D. -1

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Q26 Mathematics

If the price of oil is increased by 45%, then by what percentage should a family reduce its consumption so that the expenditure remains the same?

A. $31\frac{2}{29}$

B. $3\frac{1}{29}$

C. $31\frac{1}{29}$ ✓

D. $1\frac{1}{29}$

Q27 Mathematics

The LCM and HCF of two numbers is 2400 and 20, respectively. When we divide the first number by 8, the quotient 60. Then the second number is:

A. 300

B. 600

C. 400

D. 100 ✓

Q28 Mathematics

Find the HCF of $\frac{12}{39}$ and $\frac{5}{13}$.

A. $\frac{60}{13}$

B. $\frac{60}{39}$

C. $\frac{1}{39}$ ✓

D. $\frac{12}{13}$

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Q29 Mathematics

The least five-digit number which is exactly divisible by 9, 12 and 15 is:

A. 10050

B. 10060

C. 10090

D. 10080 ✓

Q30 Mathematics

If $\tan\alpha = \frac{5}{3}$ and $\tan\beta = 4$, then $\alpha + \beta$ is:

A. $135°$ ✓

B. $145°$

C. $125°$

D. $160°$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

In a triangle, the ratio of the angles is 1 : 2 : 3. Find the difference between the greatest and the smallest angle.

A. 60° ✓

B. 30°

C. 0°

D. 45°

Q2 Mathematics

Evaluate:

$$6 \div [5 - \{4 - (3 - \overline{2 - 1})\}]$$

A. 6

B. 1

C. 2 ✓

D. 3

Q3 Mathematics

Find the least number that, when divided by 72, 80 and 88, leaves the remainders 52, 60, 68 respectively.

A. 7930

B. 7900 ✓

C. 7920

D. 7940

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Q4 Mathematics

A number is 50 % greater than the other. Then by how much percentage is the second number smaller than the first?

A. 50%

B. $30\frac{1}{3}\%$

C. $35\frac{1}{3}\%$

D. $33\frac{1}{3}\%$ ✓

Q5 Mathematics

A sum was invested at a simple interest at a certain rate for 2 years. Had it been invested at 3% higher rate, it would have fetched ₹300 more. Find the sum invested.

A. ₹5000 ✓

B. ₹5200

C. ₹4500

D. ₹6000

Q6 Mathematics

Find the least square number that is exactly divisible by 4, 5, 6, 15 and 18.

A. 3600

B. 32400

C. 8100

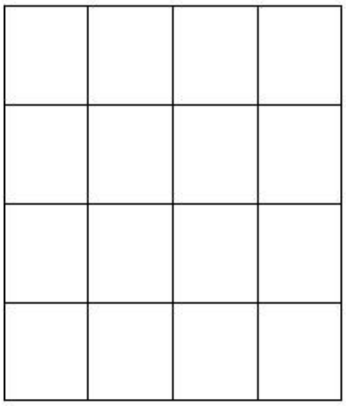
D. 900 ✓

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Q7 Mathematics

Find the number of squares in the given figure.



A. 35

B. 30 ✓

C. 34

D. 36

Q8 Mathematics

Find the difference between the mean and the median of the following data set: 2, 3, 4, 5, 5, 8, 8

A. 1

B. 3

C. 0 ✓

D. 2

Q9 Mathematics

A man travels non-stop over a certain distance at an average speed of 60 km/h. With stoppages his speed reduces to 50 km/h. How many minutes per hour does he stop?

A. 12 minutes

B. 15 minutes

C. 10 minutes ✓

D. 8 minutes

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Q10 Mathematics

A small boy is standing at some distance from a flag post. When he sees the flag, the angle of elevation formed is 60°. If the height of the flag post is 30 feet, what is the distance of the boy from the flag post?

A. $15\sqrt{3}$ ft

B. $20\sqrt{3}$ ft

C. $12\sqrt{3}$ ft

D. $10\sqrt{3}$ ft ✓

Q11 Mathematics

What will be the percentage profit after selling an article at a certain price, if there is a loss of $12\frac{1}{2}\%$ when the article is sold at half of the that selling price?

A. 70%

B. 60%

C. 80%

D. 75% ✓

Q12 Mathematics

Find the least number that, when divided by 18, 24, 30 and 42, will leave in each case the same remainder 3.

A. 2523 ✓

B. 2520

C. 2530

D. 2535

Q13 Mathematics

A square field of 2 sq km area is to be divided into two equal parts by a fence that coincides with a diagonal. Find the length of the fence.

A. $\sqrt{2}$ km

B. 1 km

C. 3 km

D. 2 km ✓

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Q14 Mathematics

A tower is $200\sqrt{3}$ m high. Find the angle of elevation of its top from a point 200 m away from its foot.

A. 90°

B. 30°

C. 45°

D. 60° ✓

Q15 Mathematics

Solve the following expression:

$3 \times 0.3 \times 0.03 \times 0.003 \times 300$

A. 0.0243 ✓

B. 0.2430

C. 2.430

D. 24.30

Q16 Mathematics

Find the remainder when $x^3 + 4x^2 + 6x - 2$ is divided by $(x + 5)$.

A. -55

B. -50

C. -57 ✓

D. -53

Q17 Mathematics

At what rate percentage will a sum of money become eight times in 3 years if the interest is compounded yearly?

A. 50%

B. 80%

C. 100% ✓

D. 60%

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Q18 Mathematics

How many 3-digit numbers are divisible by 7?

A. 126

B. 128 ✓

C. 130

D. 125

Q19 Mathematics

$6^{61} + 6^{62} + 6^{63} + 6^{64} + 6^{65}$ is completely divisible by:

A. 15 ✓

B. 11

C. 17

D. 13

Q20 Mathematics

10 men can finish a certain task in 10 days, whereas it takes 12 women to finish it in 10 days. If 15 men and 6 women undertake to complete the task, how many days will they need to complete it?

A. 8 days

B. 6 days

C. 5 days ✓

D. 10 days

Q21 Mathematics

$371 \div 16 = 23.1875$. What will be the value of $0.00371 \div 0.016$?

A. 2.31875

B. 0.0231875

C. 231.875

D. 0.231875 ✓

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Q22 Mathematics

A person marks his article 25% above the cost price but allows 12.5% discount. If he sells the article for ₹875, find his cost price.

A. ₹600

B. ₹400

C. ₹700

D. ₹800 ✓

Q23 Mathematics

If $x - \frac{1}{x} = \sqrt{21}$, find the positive value of $(x^2 + \frac{1}{x^2})(x + \frac{1}{x})$.

A. 122

B. 120

C. 115 ✓

D. 125

Q24 Mathematics

If $\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} = a + b\sqrt{15}$, then what is the value of a?

A. 5

B. 4 ✓

C. 3

D. 8

Q25 Mathematics

Find the number of lead balls of diameter 1 cm each that can be made from a lead sphere of diameter 16 cm.

A. 4096 ✓

B. 4090

C. 4080

D. 4075

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Q26 Mathematics

Find the median of the following numbers:30, 38, 35, 28, 25, 20, 18, 16, 17, 19

A. 28

B. 22.5 ✓

C. 25

D. 26.5

Q27 Mathematics

If 5 horses eat 18 quintals of oats in 9 days, how long at the same rate will 66 quintals last for 15 horses?

A. 18 days

B. 12 days

C. 15 days

D. 11 days ✓

Q28 Mathematics

A can finish a work in 25 days and B can finish the same work in 20 days. They work together for 5 days and then A goes away. In how many days will B finish the remaining work?

A. 9 days

B. 10 days

C. 12 days

D. 11 days ✓

Q29 Mathematics

₹2430 is divided among three persons A, B and C such that if their shares are diminished by ₹5, ₹10 and ₹15 respectively, the remainders shall be in the ratio 3 : 4 : 5. Find the share of C.

A. ₹1015 ✓

B. ₹810

C. ₹1250

D. ₹605

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Q30 Mathematics

Which one of the following is the smallest fraction:

$\frac{6}{11}, \frac{13}{18}, \frac{15}{22}, \frac{19}{36}, \frac{5}{6}$

A. $\frac{6}{11}$

B. $\frac{5}{6}$

C. $\frac{13}{18}$

D. $\frac{19}{36}$ ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Kunal was asked to find $\frac{5}{6}$ times of a number. He multiplied it by $\frac{6}{5}$. As a result, he got an answer which was more than the correct answer by 572. The number was:

A. 2860

B. 5720

C. 1560 ✓

D. 2160

Q2 Mathematics

What is the value of the following expression?

$$50 - [8\{9 - (6 - \overline{5+3})\}]$$

A. 53

B. –38 ✓

C. –48

D. 47

Q3 Mathematics

How many numbers between 100 and 300 are divisible by 7?

A. 30

B. 28 ✓

C. 27

D. 29

Q4 Mathematics

After deducting 10% from a certain sum, and then deducting 20% from the remainder, a sum of ₹3,600 is left. Find the original sum (in ₹).

A. 6,000

B. 3,800

C. 5,000 ✓

D. 4,000

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Q5 Mathematics

When $x + y + z = 16$ and $xy + yz + zx = 78$, find the value of $x^3 + y^3 + z^3 - 3xyz$.

A. 352 ✓

B. 365

C. 350

D. 360

Q6 Mathematics

A certain sum of money, invested with simple interest, amounts to ₹756 in 2 years and to ₹873 in 3.5 years. Find the sum (in ₹).

A. 500

B. 700

C. 600 ✓

D. 400

Q7 Mathematics

The greatest number of four digits which is divisible by 5, 35, 39 and 65 is:

A. 9994

B. 9505

C. 9055

D. 9555 ✓

Q8 Mathematics

Three cubes of a metal whose edges are 3, 4 and 5 cm respectively are melted and formed into a single cube. If there is no loss of metal in the process, find the side of the new cube.

A. 8 cm

B. 10 cm

C. 6 cm ✓

D. 9 cm

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Q9 Mathematics

₹4,800 becomes ₹6,000 in 4 years at a certain rate of compound interest. What will be the amount after 12 years at the same rate of compound interest?

A. ₹12,000

B. ₹8,400

C. ₹9,600

D. ₹9,375 ✓

Q10 Mathematics

The radius of a road roller is 7 m and its length is 14 m. It takes 100 revolutions to level the ground of a field. Find the area of the field. [Use $\pi = \frac{22}{7}$]

A. 61400 m^2

B. 61200 m^2

C. 61000 m^2

D. 61600 m^2 ✓

Q11 Mathematics

The total number of gold medals and silver medals won by a person in games is 75. Which of the following CANNOT be the ratio of number of silver medals won to that of gold medals won by that person?

A. 2 : 3

B. 7 : 8

C. 9 : 1 ✓

D. 12 : 13

Q12 Mathematics

If the largest angle in a triangle is 75°, what is the least possible value of the smallest angle of the triangle?

A. 30° ✓

B. 40°

C. 76°

D. 70°

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Q13 Mathematics

The circumference of a circle is $30\ \pi$ cm. What is its area (in cm^2)?

A. $15\ \pi$

B. $225\ \pi$ ✓

C. $900\ \pi$

D. $400\ \pi$

Q14 Mathematics

What smallest positive fraction should be added to $3\frac{2}{3} + 6\frac{7}{12} + 4\frac{9}{36} + 5 + 7\frac{1}{12}$ to make the sum a whole number?

A. $\frac{5}{12}$ ✓

B. $\frac{11}{12}$

C. $\frac{7}{12}$

D. $\frac{13}{12}$

Q15 Mathematics

A person travelled 120 km by steamer, 450 km by train and 60 km by horse. It took 13 h 30 min. If the speed of the train is 3 times that of the horse and 1.5 times that of the steamer, find the speed of the train.

A. 65 km/h

B. 64 km/h

C. 60 km/h ✓

D. 62 km/h

Q16 Mathematics

If $\sqrt{x} + \frac{1}{\sqrt{x}} = 3$, then find the value of $x^2 + \frac{1}{x^2}$.

A. 53

B. 47 ✓

C. 51

D. 49

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Q17 Mathematics

Find the value of $\frac{(0.01)^2+(0.22)^2+(0.333)^2+(0.4444)^2+(0.55555)^2}{(0.001)^2+(0.022)^2+(0.0333)^2+(0.04444)^2+(0.055555)^2}$

A. 50

B. 100 ✓

C. 125

D. 75

Q18 Mathematics

If $x + y = 1$, then find the value of $x^3 + y^3 + 3xy$.

A. 6

B. 0

C. 1 ✓

D. 2

Q19 Mathematics

What is the least multiple of 7, which when divided by 2, 3, 4, 5 and 6 leaves the remainders 1, 2, 3, 4 and 5 respectively?

A. 133

B. 119 ✓

C. 140

D. 147

Q20 Mathematics

Find the median of the given data.

20, 28, 32, 48, 20, 18, 16, 2, 30, 14

A. 24

B. 48

C. 20 ✓

D. 22

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Q21 Mathematics

The number by which 62557 can be divided to make it a perfect cube is:

A. 57

B. 47 ✓

C. 37

D. 45

Q22 Mathematics

The length of the string between a kite and a point on the ground, without any slack, is 102 m. If the string makes an angle $\propto$ with the level ground such that $\tan \propto = \frac{15}{8}$, how high is the kite?

A. 105 m

B. 90 m ✓

C. 100 m

D. 80 m

Q23 Mathematics

Hema decided to donate 15% of her salary to a charitable trust. On the day of donation she changed her mind and donated ₹4,500 which is 125% of what she has decided earlier. Find Hema's salary.

A. ₹30,000

B. ₹24,000 ✓

C. ₹18,000

D. ₹32,000

Q24 Mathematics

A group of men decided to complete a task in 10 days, but five of them remained absent. If the rest of the group completed the task in 12 days, find the original number of men in the group.

A. 30 ✓

B. 25

C. 32

D. 20

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Q25 Mathematics

Two runners cover the same distance at the speeds of 15 km/h and 16 km/h respectively. Find the distance travelled when one takes 16 min longer than the other.

A. 63 km

B. 64 km ✓

C. 62 km

D. 60 km

Q26 Mathematics

The cost price of 10 articles is equal to the selling price of 9 articles. Find the percentage profit.

A. $121\frac{1}{9}\%$

B. $11\frac{1}{9}\%$ ✓

C. $13\frac{1}{9}\%$

D. $10\frac{1}{9}\%$

Q27 Mathematics

The HCF and LCM of two numbers are 2 and 144 respectively. If one number is 16 then the other number is:

A. 18 ✓

B. 32

C. 24

D. 36

Q28 Mathematics

Two poles are standing on a level ground at a distance of 24 m. The heights of the poles are 20 m and 38 m. Find the distance between their tops.

A. 24 m

B. 29 m

C. 30 m ✓

D. 28 m

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Q29 Mathematics

What would be the maximum value of Q in the following equation?

$5P9 + 3R7 + 2Q8 = 1114$

A. 8

B. 9 ✓

C. 7

D. 5

Q30 Mathematics

The side of an equilateral triangle is 10 cm. Find its altitude.

A. $6\sqrt{3}$ cm

B. $3\sqrt{3}$ cm

C. $4\sqrt{3}$ cm

D. $5\sqrt{3}$ cm ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If $x = a(b-c), y = b(c-a)$ and $z = c(a-b)$ then what will be the value of $\left(\frac{x}{a}\right)^3 + \left(\frac{y}{b}\right)^3 + \left(\frac{z}{c}\right)^3$?

A. $3xyzabc$

B. 3

C. $\frac{xyz}{abc}$

D. $\frac{3xyz}{abc}$ ✓

Q2 Mathematics

A vehicle before overhauling requires $\frac{5}{6}$ h service time every 90 days, while after overhauling it requires $\frac{5}{6}$ h service time every 120 days. What fraction of the pre- overhauling services time is saved in the latter case?

A. $\frac{1}{4}$ ✓

B. $\frac{1}{6}$

C. $\frac{1}{3}$

D. $\frac{1}{2}$

Q3 Mathematics

The incomes of A and B are in the ratio 3 : 2 and their expenditures are in the ratio 5 : 3. If each saves ₹2,000, what will be the difference between their incomes?

A. ₹4,000 ✓

B. ₹6,000

C. ₹5,000

D. ₹8,000

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Q4 Mathematics

A fort has provisions for 150 men for 45 days. After 10 days 25 men left the fort. How long will the provisions last at the same rate for the remaining men?

A. 50 days

B. 45 days

C. 42 days ✓

D. 40 days

Q5 Mathematics

Find the HCF of 16.5, 0.45 and 15.

A. 45

B. 15

C. 0.15 ✓

D. 0.45

Q6 Mathematics

The height of a house is h and 5.2 m long ladder is just sufficient to go at the top of the house when its inclination with the horizontal ground is 45°. Find the height of the house.

A. 14 m

B. 10.4 m

C. $\frac{13\sqrt{2}}{5}$ m ✓

D. 13 m

Q7 Mathematics

If the radius of a cylinder is doubled and the height is halved, what will be the ratio of the new volume to the previous volume?

A. 2 : 1 ✓

B. 1 : 2

C. 3 : 2

D. 2 : 3

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Q8 Mathematics

What is the least number which is a perfect square and contains 3675 as its factor?

A. 11025 ✓

B. 11055

C. 11045

D. 11035

Q9 Mathematics

What is the value of the following?

$(a+1)(1-a)(1-a+a^2)(1+a+a^2)\,(1+a^6)$

A. $1+a^{36}$

B. $1-a^{36}$

C. $1+a^{12}$

D. $1-a^{12}$ ✓

Q10 Mathematics

A wire in the form of a circle of radius 7 cm is bent to form of square. Find the length of the diagonal of the square.

$\left(Take\ \pi = \frac{22}{7}\right)$

A. 44 cm

B. $22\sqrt{2}$ cm

C. $11\sqrt{2}$ cm ✓

D. 22 cm

Q11 Mathematics

Selling rubber bands at the rate of 32 a rupee, a man loses 40%. How many rubber bands for a rupee should he sell in order to gain 20%?

A. 15

B. 18

C. 20

D. 16 ✓

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Q12 Mathematics

If P is a prime number and P divides Q^2 , then P will NOT necessarily divide:

A. $3Q$

B. $Q+1$ ✓

C. $2Q^2$

D. Q

Q13 Mathematics

Find the greatest number which divides 285 and 1249 leaving remainders 9 and 7 respectively.

A. 140

B. 138 ✓

C. 130

D. 141

Q14 Mathematics

The curved surface area of a cylindrical pillar is $66\ m^2$ and its volume is $231\ m^3$. Find the measure of its radius.

$\left(\text{Take } \pi = \frac{22}{7}\right)$

A. 12 m

B. 7 m ✓

C. 14 m

D. 7.5 m

Q15 Mathematics

A person lent a certain sum of money at the rate of 4% simple interest per annum. In 8 years, the interest amounted to ₹340 less than the sum lent. Find the sum lent.

A. ₹600

B. ₹800

C. ₹500 ✓

D. ₹400

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Q16 Mathematics

A reduction of 10% in the price of mangoes enables a person to buy 10 mangoes more for ₹2250. What is the price per dozen after reduction?

A. ₹165

B. ₹250

C. ₹225

D. ₹270 ✓

Q17 Mathematics

Supposing that the telegraph poles on a railroad are 50 m apart, how many poles will be passed by a train in 4 h if the speed of the train is 45 km/h?

(Include both the poles at the starting point as well as the one at the end of the journey in your count)

A. 3600

B. 3604

C. 3602

D. 3601 ✓

Q18 Mathematics

A man lent a part of ₹30,000 at the rate of 10% per annum and the remaining at the rate of 8% per annum simple interest. The total interest he received after 3 years is ₹8,280. Find the amount he lent at 10% per annum.

A. ₹16,000

B. ₹20,000

C. ₹19,000

D. ₹18,000 ✓

Q19 Mathematics

If $x^2 = y + z, y^2 = z + x, z^2 = x + y$, then the value of $\frac{1}{x+1} + \frac{1}{y+1} + \frac{1}{z+1}$ will be:

A. 1 ✓

B. 2

C. -1

D. 4

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Q20 Mathematics

The given data is arranged in ascending order. The median of the data is 63. Find the value of x.

29, 32, 48, 50, x, x+2, 72, 78, 84, 95

A. 62 ✓

B. 64

C. 60

D. 63

Q21 Mathematics

A tree is broken by the wind at a height from the foot. The broken upper part of 10 m length touches the ground at a distance of 6 m from the foot of the tree. Find the height of the tree.

A. 20 m

B. 16 m

C. 24 m

D. 18 m ✓

Q22 Mathematics

A car travels a distance of 300 km at a uniform speed. If the speed of the car is 5 km/h more, it takes 2 h less to cover the same distance. Find the original speed of the car.

A. 20 km/h

B. 25 km/h ✓

C. 30 km/h

D. 24 km/h

Q23 Mathematics

Which of the following is a rational number?

A. $(\sqrt{2}+\sqrt{5})^2$

B. $2+\sqrt{5}$

C. $2-\sqrt{5}$

D. $(\sqrt{2}+\frac{1}{\sqrt{8}})^2$ ✓

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Q24 Mathematics

Find the median of the given data.

25, 18, 20, 16, 8, 10, 15, 20, 13, 30

A. 30

B. 17 ✓

C. 20

D. 15

Q25 Mathematics

A can complete in 2 days as much of a task as B can complete in 3 days and B can complete in 4 days as much of the task as C can complete in 5 days. In what time will A, B and C together complete the task if A alone can complete it in 22 days?

A. 11 days

B. 14 days

C. 10 days ✓

D. 12 days

Q26 Mathematics

Solve the following.

$5 + 5 \times 5 \div (5 \times 5) \times 5 = ?$

A. 120

B. 10 ✓

C. 130

D. 50

Q27 Mathematics

$\frac{1}{3}$ of a commodity is sold at the rate of 15% profit, $\frac{1}{4}$ is sold at the rate of 20% profit and the rest is sold at the rate of 24% profit. If a total profit of ₹62 is earned, then find the cost price of the commodity.

A. ₹310 ✓

B. ₹325

C. ₹300

D. ₹320

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Q28 Mathematics

What is the sum of the measures of the interior angles of a hexagon?

A. $720°$ ✓

B. $1080°$

C. $150°$

D. $810°$

Q29 Mathematics

If $X = \sqrt{\left(1+\frac{\sqrt{3}}{2}\right)} + \sqrt{\left(1-\frac{\sqrt{3}}{2}\right)}$ then the simplified value of X will be:

A. $\sqrt{3}$ ✓

B. $\frac{1}{2}$

C. 1

D. $-\sqrt{3}$

Q30 Mathematics

Find the fraction form of 0.666....

A. $\frac{3}{2}$

B. $\frac{2}{7}$

C. $\frac{2}{3}$ ✓

D. $\frac{1}{3}$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Which of the following options has the fractions in ascending order?

A. $\frac{3}{8}, \frac{2}{5}, \frac{9}{11}, \frac{5}{6}, \frac{6}{7}$ ✓

B. $\frac{2}{5}, \frac{6}{7}, \frac{9}{11}, \frac{3}{8}, \frac{5}{6}$

C. $\frac{9}{11}, \frac{6}{7}, \frac{5}{6}, \frac{2}{5}, \frac{3}{8}$

D. $\frac{6}{7}, \frac{5}{6}, \frac{9}{11}, \frac{2}{5}, \frac{3}{8}$

Q2 Mathematics

The sides of a triangle are in the ratio of $\frac{2}{5} : \frac{1}{3} : \frac{3}{5}$ and its perimeter is 110 cm. The length of the shortest side is:

A. 27.5 cm ✓

B. 33 cm

C. 30 cm

D. 49.5 cm

Q3 Mathematics

The circumradius of a triangle is 9 cm while the inradius of it is 4 cm. What is the distance between the circumcentre and the incentre of the triangle?

A. 4 cm

B. 2 cm

C. 3 cm ✓

D. 5 cm

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Q4 Mathematics

A rectangular carpet has an area of 168 m^2 and a perimeter of 62 m. The length of its diagonal is:

A. 20 m

B. 25 m ✓

C. 24 m

D. 23 m

Q5 Mathematics

A shop keeper sold an electric blender at a loss of $3\frac{1}{2}\%$. Had he sold it for ₹172.5 more, he would have gained 8%. To gain 13%, he should sell it for:

A. ₹1,550

B. ₹1,595

C. ₹1,680

D. ₹1,695 ✓

Q6 Mathematics

The top of a 12 m high tower makes an angle of depression of 60°with the bottom of an electric pole and angle of depression of 30°with the top of the pole. What is the height of the electric pole?

A. 10 m

B. 9 m

C. 8 m ✓

D. 11 m

Q7 Mathematics

If $25^{3.8} \times 5^{4.2} \div 5^{6.4} = 25^{x}$, then the value of x is:

A. 2.7 ✓

B. 1.2

C. 2

D. 1.4

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Q8 Mathematics

If 12% of a = 25% of b then a : b is equal to:

A. 5 : 3

B. 3 : 5

C. 25 : 12 ✓

D. 12 : 25

Q9 Mathematics

At what rate of compound interest per annum will a sum of ₹10,000 become ₹11,025 in 2 years?

A. 6%

B. 4%

C. 5% ✓

D. 4.5%

Q10 Mathematics

Krishna ate $\frac{1}{3}$ of a pizza and Devshya ate $\frac{2}{5}$ of the remaining. What fraction of the pizza is left uneaten?

A. $\frac{3}{15}$

B. $\frac{4}{15}$

C. $\frac{2}{5}$ ✓

D. $\frac{3}{5}$

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Q11 Mathematics

A man can complete a task in 7 days but with the help of his son, he can complete it in 4 days. In how many days can his son complete it alone?

A. $7\frac{2}{3}$ days

B. $9\frac{1}{3}$ days ✓

C. $8\frac{1}{3}$ days

D. $6\frac{1}{3}$ days

Q12 Mathematics

Solve the following.

If $x - \frac{1}{x} = 3$, then $x^3 - \frac{1}{x^3} = ?$

A. 18

B. 36 ✓

C. 9

D. 27

Q13 Mathematics

A number, when 42 is subtracted from it, reduces to its 70%. What is two-fifth of that number?

A. 140

B. 84

C. 56 ✓

D. 100

Q14 Mathematics

25 women can complete a task in 60 days. After how many days from the start of the task should 5 more women join them so that the task is completed in 55 days?

A. 27

B. 30 ✓

C. 25

D. 20

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Q15 Mathematics

The two sides of a triangle measure 10 cm and 8 cm respectively. The area of the triangle is equal to $16\sqrt{6}\,cm^2$. Find the length of the third side, given that it is a rational number.

A. 16 cm

B. 10 cm

C. 14 cm ✓

D. 12 cm

Q16 Mathematics

A sum of ₹12,400 amounts to ₹14,632 in 3 years at a rate of simple interest. What is the rate of interest per annum?

A. 6% ✓

B. 5%

C. 4%

D. 3%

Q17 Mathematics

A person can complete a journey in 12 h. He travels the first half of the journey at a speed of 18 km/h and the second half at a speed of 30 km/h. Find the total journey in km.

A. 300

B. 270 ✓

C. 180

D. 210

Q18 Mathematics

The least perfect square number completely divisible by 4, 5, 9 and 12 is:

A. 900 ✓

B. 400

C. 3600

D. 2500

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Q19 Mathematics

The maximum length of a stick that can be kept in a rectangular box of dimensions $15\text{ cm} \times 8\text{ cm} \times 6\text{ cm}$ is:

A. $10\sqrt{13}$ cm

B. $5\sqrt{13}$ cm ✓

C. $5\sqrt{26}$ cm

D. $5\sqrt{14}$ cm

Q20 Mathematics

Four different mobile devices make a beep sound after every 30 min, 45 min, 1 h and $1\frac{1}{2}$ h respectively. All the mobiles beeped together at 10.45 a.m. They will again beep together at:

A. 3.00 p.m.

B. 5.30 p.m.

C. 1.45 p.m. ✓

D. 2.45 p.m.

Q21 Mathematics

The mean of the ages of three friends is 22. If the mean of the ages of four friends is 24, then find the age of the fourth friend.

A. 24

B. 30 ✓

C. 31

D. 22

Q22 Mathematics

If $x = 2 + \sqrt{2}$, then what will be the value of $x^2 - 4x + 4$?

A. 4

B. 1

C. 2 ✓

D. 0

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Q23 Mathematics

The least number, which when divided by 18, 30, 40 and 45 leaves in each case a remainder of 7, is:

A. 367 ✓

B. 361

C. 353

D. 360

Q24 Mathematics

If $\alpha + \beta + \gamma = 0$, then $\frac{\alpha^2}{\beta\gamma} + \frac{\beta^2}{\gamma\alpha} + \frac{\gamma^2}{\alpha\beta} = ?$

A. 1

B. 3 ✓

C. 4

D. 2

Q25 Mathematics

The value of a car depreciates at the rate of 12% per annum. Its present value is ₹7,74,400. What was the value of the car 2 years ago?

A. ₹9,99,999

B. ₹11,00,000

C. ₹9,00,000

D. ₹10,00,000 ✓

Q26 Mathematics

The altitude drawn to the base of an isosceles triangle is 12 cm and the perimeter is 36 cm. Find the area of the triangle.

A. $90\ cm^2$

B. $60\ cm^2$ ✓

C. $120\ cm^2$

D. $100\ cm^2$

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Q27 Mathematics

What is the mean deviation of eight observations?

6, 7, 10, 12, 13, 4, 8, 12

A. 2.75 ✓

B. 2.25

C. 2

D. 2.5

Q28 Mathematics

If $\sqrt{40} = 6.3245$, then what will be the value of $\sqrt{\frac{8}{5}}$?

A. 1.2649 ✓

B. 1.2593

C. 1.3303

D. 1.4132

Q29 Mathematics

Solve the following.

$55 + [29 - \{25 - (6 - 24 \div 6 \times 8)\}] = ?$

A. 33 ✓

B. 41

C. 63

D. 59

Q30 Mathematics

When the positive integer K is divided by 18, the remainder is 9. What is the remainder when K is divided by 6?

A. 4

B. 3 ✓

C. 2

D. 1

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If circumference and area of a circle are numerically equal then radius of the circle is:

A. 4 units

B. 2 units ✓

C. 16 units

D. 1 unit

Q2 Mathematics

Kings and Queens of black colour are taken out from a deck of 52 playing cards. A card is drawn from the remaining well-shuffled cards. Probability of getting a spade card is:

A. $\frac{1}{4}$

B. $\frac{11}{13}$

C. $\frac{11}{48}$ ✓

D. $\frac{11}{52}$

Q3 Mathematics

Find the least multiple of 7 which when divided by 6, 8 and 12 leaves 1 as remainder.

A. 25

B. 49 ✓

C. 73

D. 169

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Q4 Mathematics

Six years from now, Kirti's age will be twice the age of her brother Kunal, but 4 years ago she was four times as old as Kunal was then. Find the present age of Kunal.

A. 9 years ✓

B. 15 years

C. 30 years

D. 24 years

Q5 Mathematics

Simplify.

$5 + 2 \times 3 \div (3 \times 2) \times 3$

A. 8 ✓

B. 17

C. $\frac{7}{6}$

D. $\frac{16}{3}$

Q6 Mathematics

Two cars cover a certain distance by moving at speeds of 45 km/h and 50 km/h respectively. Find the distance travelled when one car takes 32 minutes more than the other to cover the distance.

A. $\frac{240}{19}$ km

B. $\frac{152}{3}$ km

C. $\frac{8}{3}$ km

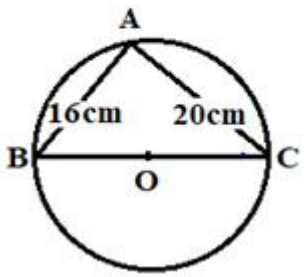
D. 240 km ✓

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Q7 Mathematics

Find the area of ΔABC.



A. $32\ cm^2$

B. $160\ cm^2$ ✓

C. $320\ cm^2$

D. $240\ cm^2$

Q8 Mathematics

Two numbers are in the ratio 3 : 2. If 8 and 6 are subtracted from the first and the second number respectively, the ratio becomes 8 : 5. The numbers are:

A. 3,2

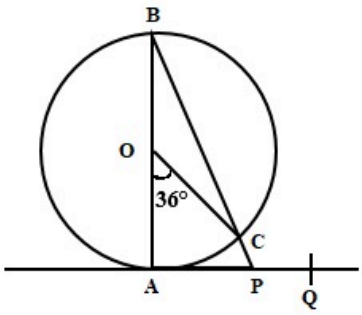
B. 24,16 ✓

C. 40,30

D. 32,24

Q9 Mathematics

In the given figure, AB is the diameter of the circle. AP is a tangent to circle at A. Extended BC meets the tangent at P. $\angle AOC = 36°$. Find $\angle BPQ$.



A. 72°

B. 54°

C. 108° ✓

D. 126°

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Q10 Mathematics

A bag contains cards numbered between 33 and 92. If one card is drawn from the bag, the probability that the number on the drawn card is a perfect square is:

A. $\frac{5}{59}$

B. $\frac{4}{59}$

C. $\frac{1}{15}$ ✓

D. $-\frac{1}{12}$

Q11 Mathematics

For a = −5 and b = 5, value of $a^2 - b^2$ is:

A. −10

B. 0 ✓

C. −50

D. 100

Q12 Mathematics

Two friends received a bonus of ₹2,000 each in their bank accounts. They already have ₹47,000 and ₹54,000 in their respective bank accounts. Ratio of the amounts in their respective accounts will be:

A. 7 : 8 ✓

B. 47 : 56

C. 49 : 54

D. 47 : 54

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Q13 Mathematics

By which number should $2\frac{1}{5}$ be multiplied to get $5\frac{2}{5}$?

A. $2\frac{5}{11}$ ✓

B. $\frac{11}{27}$

C. 3

D. $3\frac{1}{5}$

Q14 Mathematics

A, B and C together can do a piece of work in 14 days, whereas C alone can do the same work in 42 days. How long will A and B together take to finish it?

A. 28 days

B. 35 days

C. 21 days ✓

D. 7 days

Q15 Mathematics

A fruit seller buys oranges at the rate of 12 for ₹60. How many oranges should he sell for ₹60 so as to gain 20%?

A. 9

B. 10 ✓

C. 11

D. 8

Q16 Mathematics

An amount doubles itself on simple interest in 4 years. What is the per cent per annum rate of interest?

A. 50%

B. 25% ✓

C. 12.5%

D. 100%

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Q17 Mathematics

What is the value of $8x^3 + 18xy + y^3 - 27$ when $2x + y - 3 = 0$.

A. -27

B. 27

C. 0 ✓

D. 1

Q18 Mathematics

Find the value of

$$\frac{\cos^2 22^\circ + \cos^2 68^\circ}{2(\sin^2 22^\circ + \sin^2 68^\circ)} - \sin^2 16^\circ - \cos 16^\circ \sin 74^\circ$$

A. $-\frac{1}{2}$ ✓

B. 0

C. $\frac{3}{2}$

D. 2

Q19 Mathematics

LCM of 30, 40 and 45 is:

A. 115

B. 54000

C. 5

D. 360 ✓

Q20 Mathematics

If $tan\theta = 1$ (θ an acute angle) then the value of $2\ sin\theta cos\theta - cosec^2\theta$ is:

A. -1 ✓

B. 1

C. -3

D. $1 - \sqrt{2}$

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Q21 Mathematics

Find the value of x if, 20% of 75 = 225 – x% of 420.

A. 50 ✓

B. 3

C. 1535

D. 20

Q22 Mathematics

A sells an article to B at a profit of 20% and B sells it to C at a profit of 20%. If C pays ₹360 for it, what was the cost price for A?

A. ₹308

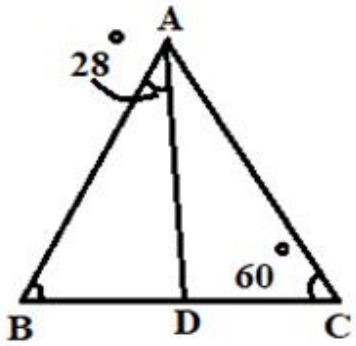
B. ₹144

C. ₹250 ✓

D. ₹120

Q23 Mathematics

$If \frac{AB}{AC} = \frac{BD}{DC}$ *then* $\angle ABC$ *is:*



A. 92°

B. 32°

C. 64° ✓

D. 74°

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Q24 Mathematics

A can complete a piece of work in 24 days. He worked for 21 days and then B finished the remaining work in 5 days. In how many days can A and B together finish the work?

A. 45 days

B. 40 days

C. 15 days ✓

D. 24 days

Q25 Mathematics

What is the difference between $\frac{3}{5}$ of 200 and $\frac{1}{2}$ of 300?

A. 100

B. 200

C. 60

D. 30 ✓

Q26 Mathematics

In what time will ₹3,200 invested at 10% per annum compounded quarterly become ₹3,362?

A. 2 years

B. $\frac{1}{2}$ year ✓

C. $2\frac{1}{2}$ years

D. $\frac{1}{4}$ year

Q27 Mathematics

Select the option that gives decimal numbers 0.25, 1.24, 0.0882 and 2.67 arranged in ascending order.

A. 0.0882, 0.25, 1.24, 2.67 ✓

B. 0.25, 1.24, 0.0882, 2.67

C. 2.67, 1.24, 0.25, 0.0882

D. 1.24, 0.25, 2.67, 0.0882

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Q28 Mathematics

Simplify.

$4\sqrt{0.000081}$

A. 0.0018

B. 0.36

C. 0.0036

D. 0.036 ✓

Q29 Mathematics

Simplify.

$$\frac{1800 \div (24 \div 8 \times 3) + 16}{\frac{3}{4} \times (32 \div 2)}$$

A. 18 ✓

B. $\frac{454}{3}$

C. $\frac{150}{17}$

D. $\frac{39}{4}$

Q30 Mathematics

If $(4y-1)$ and $(y+4)$ both are factors of $py^2 + 15y - q$ then:

A. $p = 4q$

B. $p = q$ ✓

C. $p = \frac{q}{4}$

D. $p = -q$

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A spherical ball of 12 cm diameter is melted and cast into a cone, the base of which has a diameter of 8 cm. What is the height of the cone?

A. 54 cm ✓

B. 42 cm

C. 48 cm

D. 36 cm

Q2 Mathematics

The ratio of A to B is x : 12 and the ratio of B to C is 4 : y. If the ratio of A to C is 5 : 3, then x : y is _____.

A. 5 : 1 ✓

B. 5 : 3

C. 3 : 1

D. 3 : 5

Q3 Mathematics

The area of a circle is equal to the area of a square. What is the ratio of the circumference of the circle to the perimeter of the square?

A. $\pi : 2$

B. $\sqrt{\pi} : 2$ ✓

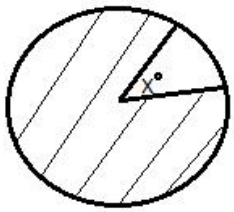
C. $2 : \sqrt{\pi}$

D. $\sqrt{2}\,\pi : 1$

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Q4 Mathematics



In the figure, if the area of the shaded sector is 70% of the area of the entire circle, then the measure of x° is _____.

A. 108° ✓

B. 100°

C. 144°

D. 72°

Q5 Mathematics

A can do a piece of work alone in 16 days and B can do the work alone in 12 days. Together with C they can complete the work in 3 days. In how many days can C alone do the work?

A. $1\frac{7}{16}$

B. $6\frac{1}{3}$

C. $3\frac{1}{5}$

D. $5\frac{1}{3}$ ✓

Q6 Mathematics

A trader mixes 20 kg of one variety of rice at ₹52 per kg with 60 kg of another variety at ₹36 per kg. If he sells that mixed rice at ₹44 per kg, his profit percent is _____.

A. 6

B. 8

C. 5

D. 10 ✓

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Q7 Mathematics

The LCM of two natural numbers is 1326 and their HCF is 3. If the difference of the numbers is 27, then the sum of the numbers is _____.

A. 117

B. 140

C. 129 ✓

D. 125

Q8 Mathematics

Find the value of

$$2+\frac{1}{1+\frac{2}{1\frac{1}{4}}}+1.$$

A. $\frac{42}{13}$

B. $\frac{45}{13}$

C. $\frac{43}{13}$

D. $\frac{44}{13}$ ✓

Q9 Mathematics

Find the value of

$$\frac{0.625\times 0.729\times 2.89}{0.0081\times 0.025\times 1.7}$$

A. 382.5

B. 3825 ✓

C. 3525

D. 352.5

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Q10 Mathematics

A rectangular box has sides 3, 4 and 5 cm. What will be the maximum length of a stick that can be placed inside the box?

A. 5 cm

B. $2\sqrt{5}$ cm

C. 4 cm

D. $5\sqrt{2}$ cm ✓

Q11 Mathematics

The median of observations $k-\frac{3}{2}$, $k+2, k-1, k+4, k+\frac{1}{2}, k-3, k+4\frac{1}{2}$ is _____.

A. $k-\frac{3}{2}$

B. $k-1$

C. $k+2$

D. $k+\frac{1}{2}$ ✓

Q12 Mathematics

A sum of money invested at a certain rate of interest compounded annually amounts to ₹729 in 4 years and ₹1,331 in 7 years. Find the annual rate of interest.

A. $17\frac{2}{7}\%$

B. $22\frac{2}{9}\%$ ✓

C. 20%

D. $23\frac{2}{9}\%$

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Q13 Mathematics

If a person drives his scooter at 45 km/hr, he reaches the destination 10 minutes late. If he drives at 60 km/hr, he is only 5 minutes late. In how many minutes should the person complete the journey to reach the destination exactly on time?

A. 10 ✓

B. 25

C. 20

D. 15

Q14 Mathematics

The arithmetic mean of a set of 16 observations is 12. If 8 is subtracted from each of six of these observations, then the new arithmetic mean is _____.

A. 9 ✓

B. 10

C. 11

D. 15

Q15 Mathematics

At a party, the ratio of men to women is 4 : 3. If there are 84 men, then how many women are at the party?

A. 63 ✓

B. 53

C. 36

D. 42

Q16 Mathematics

What is the ascending order of the fractions $\frac{4}{7}, \frac{5}{6}, \frac{2}{3}$ and $\frac{7}{8}$?

A. $\frac{2}{3}, \frac{5}{6}, \frac{4}{7}, \frac{7}{8}$

B. $\frac{2}{3}, \frac{5}{6}, \frac{7}{8}, \frac{4}{7}$

C. $\frac{4}{7}, \frac{2}{3}, \frac{5}{6}, \frac{7}{8}$ ✓

D. $\frac{4}{7}, \frac{5}{6}, \frac{2}{3}, \frac{7}{8}$

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Q17 Mathematics

The sum of the ages of father and son is 56 years. 7 years ago the father's age was 5 times the age of the son. What are the present ages of father and son respectively?

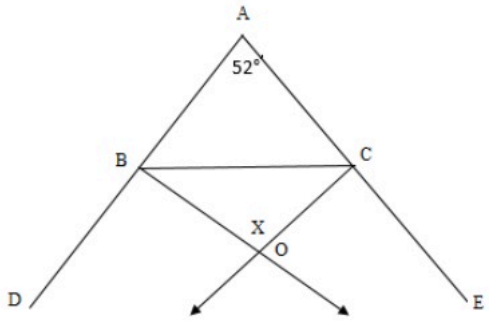
A. 45, 11 years

B. 42, 14 years ✓

C. 47, 9 years

D. 48, 8 years

Q18 Mathematics



In the above figure, BO and CO are the angular bisectors of ∠DBC and ∠BCE respectively. The measure of x is _____.

A. 58°

B. 54°

C. 52°

D. 64° ✓

Q19 Mathematics

If the HCF and LCM of 12 and x is 3 and 60 respectively, then x is _____.

A. 3

B. 5

C. 60

D. 15 ✓

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Q20 Mathematics

$\frac{9}{13}$ of a number is 54. What is $\frac{7}{13}$ of the same number?

A. 42 ✓

B. 78

C. 91

D. 84

Q21 Mathematics

If X is a least number with which you multiply 588 so that the product becomes a perfect square, then the value of X is _____.

A. 2

B. 5

C. 1

D. 3 ✓

Q22 Mathematics

Find the value of

(0.00314)(0.0393)(0.0001).

A. (0.00314)(0.00393)(0.0001)

B. (0.314)(0.00393)(0.00001) ✓

C. (0.0314)(0.393)(0.0001)

D. (0.0314)(0.00393)(0.00001)

Q23 Mathematics

For how many positive integers 'a' it is true that $a^2 \leq 5a$.

A. 6

B. 3

C. 5 ✓

D. 4

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Q24 Mathematics

A man drives 300 km from A to B in 3 hours 20 minutes. He returns the same distance in 4 hours 10 minutes. The average speed from A to B exceeds the average speed for the entire trip by _____ km/hr.

A. 9

B. 5

C. 8

D. 10 ✓

Q25 Mathematics

If $a\cos\theta + b\sin\theta = 5$ and $b\cos\theta - a\sin\theta = 3$, then the relation between a and b is _____.

A. $a^2 - b^2 = 16$

B. $\frac{1}{a^2} + \frac{1}{b^2} = 2$

C. $\frac{1}{a^2} - \frac{1}{b^2} = 1$

D. $a^2 + b^2 = 34$ ✓

Q26 Mathematics

If $x = -102 - 3\,[-2\{21 + 16 \div (20 \div 5) - 3 \times 2^2\}] - 11$, then what is the value of x?

A. –35 ✓

B. 24

C. 35

D. 17

Q27 Mathematics

In an examination, it is required to get 33% of the maximum marks to pass. A student got 130 marks and was declared failed by 35 marks. The maximum marks for the exam is _____.

A. 600

B. 550

C. 500 ✓

D. 300

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Q28 Mathematics

The compound interest on ₹5,000 for 2 years is ₹253.125. What would be the interest if the same sum is invested for the same duration at the same rate of simple interest?

A. ₹255

B. ₹248

C. ₹240

D. ₹250 ✓

Q29 Mathematics

What percentage of $\frac{3}{11}$ is $\frac{1}{121}$?

A. $3\frac{1}{33}\%$ ✓

B. $3\frac{1}{3}\%$

C. $66\frac{1}{3}\%$

D. $33\frac{1}{3}\%$

Q30 Mathematics

From the top of a 72 meter high building the angle of depression of the top and bottom of a temple are observed to be 30° and 60° respectively. What is the height of the temple?

A. 54 m

B. 36 m

C. 84 m

D. 48 m ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The positive value of m for which the roots of the equation $12x^2 + mx + 6 = 0$ are in the ratio of 2 : 3 is _____.

A. $6\sqrt{3}$

B. $10\sqrt{3}$ ✓

C. $5\sqrt{3}$

D. $30\sqrt{3}$

Q2 Mathematics

₹900 becomes ₹1,134 in 4 years at a certain rate of simple interest. If the rate of interest is increased by 3%, what amount will ₹900 become in 4 years?

A. ₹1,200

B. ₹1,234

C. ₹1,248

D. ₹1,242 ✓

Q3 Mathematics

AB is the diameter of a semicircle. C is a point on line AB, AC = 6 cm, D is the point on the semicircle such that CD is perpendicular to AB and CD = 9 cm. Find the diameter of the semicircle.

A. 15 cm

B. 7.5 cm

C. 12 cm

D. 19.5 cm ✓

Q4 Mathematics

The ratio of two numbers is 7 : 5. Their HCF is 3, their LCM is_____.

A. 42

B. 35

C. 105 ✓

D. 3

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Q5 Mathematics

The interest on a sum of money at 10% p.a. for 2 years with interest being compounded annually is ₹630. Find the simple interest (in ₹) on the sum at the same rate of interest for 3 years.

A. 850

B. 900 ✓

C. 650

D. 950

Q6 Mathematics

The price of a car is ₹6,25,000. It was insured to 80% of its price. The car was damaged completely, and the insurance company paid 90% of the insurance. What was the difference between the price of the car and the amount received?

A. ₹18,000

B. ₹1,50,000

C. ₹1,25,000

D. ₹1,75,000 ✓

Q7 Mathematics

A hemispherical bowl of internal radius of 12 cm contains a liquid. This liquid is to be filled into conical shaped small bottles of base diameter 3 cm and height 4 cm. How many same type of bottles will be needed to empty the bowl?

A. 520

B. 384 ✓

C. 438

D. 400

Q8 Mathematics

The sum of the prime numbers between the integer greater than 8 and less than 59 is _____.

A. 364 ✓

B. 365

C. 359

D. 361

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Q9 Mathematics

Find the value of $\frac{(759+253)^2+(759-253)^2}{759\times759+253\times253}$:

A. 1012

B. 0

C. 2 ✓

D. 1

Q10 Mathematics

AB and CD are two chords of a circle. AB = 6 cm, CD = 8 cm and AB ∥ CD. If the distance between AB and CD is 7 cm and the centre of the circle lies in the interior of the quadrilateral ABCD, then find the radius of the circle (in cm).

A. 5 ✓

B. 8

C. 7.5

D. 10

Q11 Mathematics

The LCM of two numbers is 315 and their HCF is 21, and the difference of the numbers is 42. The sum of the numbers is _____.

A. 83

B. 168 ✓

C. 105

D. 63

Q12 Mathematics

P can complete a task in 10 days working 6 hours a day. Q can complete the same task in 9 days working 10 hours a day. If both P and Q work together working 6 hours a day, then in how many days can they complete the task?

A. 9 days

B. 10 days

C. 8 days

D. 6 days ✓

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Q13 Mathematics

The HCF of 17.5, 42 and 14 is _____.

A. 7

B. 0.07

C. 70

D. 0.7 ✓

Q14 Mathematics

0.002 is what percent of 0.12?

A. 6%

B. $\frac{5}{3}\%$ ✓

C. $\frac{3}{5}\%$

D. 5%

Q15 Mathematics

The capacity of a cylindrical tank is 38,500 litres. If the height is 4 metres, then what is the diameter of the base?

A. 7 m

B. 3.5 m ✓

C. 17.5 m

D. 1.75 m

Q16 Mathematics

Two concentric circles form a circular path. The inner and outer circumferences of the path are $56\frac{4}{7}$ m and $94\frac{2}{7}$ m respectively. Find the width of the path.

A. 2 m

B. 6 m ✓

C. 9 m

D. 3 m

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Q17 Mathematics

A, B and C together can complete a task in 16 days. After, three of them worked together for 2 days, A left. B and C continued for 9 more days and then B left. C completed the remaining work in 6 days. If C alone can complete the entire task in 24 days, then in how many days can B alone complete it?

A. 36 days ✓

B. 35 days

C. 30 days

D. 32 days

Q18 Mathematics

Two ships are sailing in the sea on two sides of a lighthouse. The angles of elevation of top of the lighthouse as observed from the two ships are 30° and 45° respectively. If the light house is 90 m high, then the distance between the two ships is _____.

A. $90\sqrt{3}$ m

B. $90(\sqrt{3}+1)$ m ✓

C. 100 m

D. $90(\sqrt{3}-1)$ m

Q19 Mathematics

If each side of square is increased by 20% then find the percentage change in its area.

A. 2.05%

B. 44% ✓

C. 40%

D. 20%

Q20 Mathematics

The perimeters of two squares are 48 cm and 60 cm. Find the perimeter of a third square whose area is equal to the difference of the area of the squares.

A. 32 cm

B. 44 cm

C. 36 cm ✓

D. 40 cm

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Q21 Mathematics

If ₹1,313 is divided into three parts proportional to $\frac{1}{3} : \frac{3}{5} : \frac{3}{4}$, then the second part is _____.

A. ₹468 ✓

B. ₹585

C. ₹360

D. ₹260

Q22 Mathematics

If $x = 3 + \sqrt{5}$ and $y = 3 - \sqrt{5}$, then find the value of $x^2 + y^2$.

A. 5

B. 14

C. 28 ✓

D. 4

Q23 Mathematics

A bag contains 50 paise, 25 paise and 10 paise coins in the ratio 9 : 5 : 6 amounting to ₹317.5. Find the number of coins of 25 paise.

A. 300

B. 450

C. 250 ✓

D. 600

Q24 Mathematics

Solve the following:

$1498 \times 1498 =$ _____ .

A. 22,56,004

B. 22,44,004 ✓

C. 22,44,000

D. 2,25,600

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Q25 Mathematics

A milk vendor sells milk at 20% more than the cost price. Also, he adds 3 litres of water to every 5 litres of milk. Find his overall gain percent.

A. 25%

B. 92% ✓

C. 80%

D. 60%

Q26 Mathematics

Two articles are sold by a trader. One of them is sold for 20% profit. Its selling price equals the cost price of the other article which is sold for 20% loss. Find the effective profit/loss percentage approximately.

A. 1.8% loss ✓

B. 2.5% profit

C. 4% loss

D. 1.8% profit

Q27 Mathematics

Pipes A and B are fitted to a tank. A is the filling pipe and B can be used for filling or emptying at the same rate. When B is used for filling, it takes time 't' along with A to fill the tank. If it is used for emptying when A is filling the tank, the time taken for the tank to fill up would be '5t'. Find the ratio of the rates of A and B.

A. 5 : 1

B. 1 : 3

C. 3 : 2 ✓

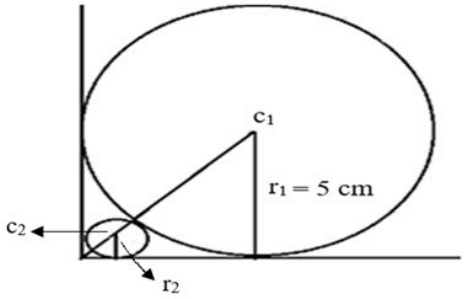
D. 2 : 3

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Q28 Mathematics

A circle having centre c_1, radius $r_1 = 5$ cm is placed against a right angle. Another smaller circle having centre c_2, radius r_2 is also placed touching the sides of angle and the bigger circle as shown in the figure. Find the radius, r_2 in cm, of the smaller circle.



A. $3(5+2\sqrt{2})$

B. $5(3+2\sqrt{2})$

C. $5(3-2\sqrt{2})$ ✓

D. $3(5-2\sqrt{2})$

Q29 Mathematics

If $\frac{7+2\sqrt{5}}{11+3\sqrt{5}} = a + b\sqrt{5}$, then:

A. $a = 1;\ b = \sqrt{5}$

B. $a = \sqrt{5};\ b = 1$

C. $a = \frac{1}{16};\ b = \frac{47}{76}$

D. $a = \frac{47}{76};\ b = \frac{1}{76}$ ✓

Q30 Mathematics

Find the value of $\frac{515.86\times515.86-314.87\times314.87}{200.99}$:

A. 200.19

B. 201

C. 83.073

D. 830.73 ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A person sold his watch for ₹144 and got a percentage of profit equal to the cost price. Find the cost of the watch.

A. ₹80 ✓

B. ₹100

C. ₹180

D. ₹200

Q2 Mathematics

What quantity of water should be added to reduce 9 L of 50% acidic liquid to 30% acidic liquid?

A. 3 L

B. 9 L

C. 6 L ✓

D. 5 L

Q3 Mathematics

What is the smallest sum of money which contains ₹2.50, ₹20, ₹1.20 and ₹7.50?

A. ₹5

B. ₹1.20

C. ₹60 ✓

D. ₹40

Q4 Mathematics

In a quadrilateral, the length of one of its diagonals is 23 cm and the perpendiculars drawn on this diagonal from other two vertices measure 17 cm and 7 cm respectively. Find the area of the quadrilateral.

A. 300 cm^2

B. 286 cm^2

C. 276 cm^2 ✓

D. 376 cm^2

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Q5 Mathematics

If $\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} = a + b\sqrt{15}$ then what is the value of a?

A. 3

B. 4 ✓

C. 5

D. 8

Q6 Mathematics

In a quadrilateral the angles are in the ratio of 1 : 2 : 3 : 4. Find the measure of the greatest angle of the quadrilateral.

A. 120°

B. 360°

C. 180°

D. 144° ✓

Q7 Mathematics

At what rate per cent per year compound interest does a sum of money becomes $\frac{9}{4}$ times of itself in 2 years?

A. 60%

B. 50% ✓

C. 35%

D. 40%

Q8 Mathematics

What should be added to $\frac{3}{5}$ to obtain number equal to its reciprocal?

A. $\frac{34}{15}$

B. $\frac{2}{5}$

C. $\frac{8}{15}$

D. $\frac{16}{15}$ ✓

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Q9 Mathematics

Two trains for Dehradun leave Delhi at 10:00 a.m. and 10:30 a.m. and travel at the speeds of 60 km/h and 75 km/h respectively. How many km from Delhi will the two trains meet each other?

A. 140 km

B. 130 km

C. 150 km ✓

D. 100 km

Q10 Mathematics

By selling 32 oranges for ₹1, a man incurs the loss of 40%. How many oranges must he sell for ₹1 to gain 20%?

A. 20

B. 16 ✓

C. 15

D. 18

Q11 Mathematics

If $a + b + c = 0$ then what is the value of

$$\frac{a^2 + b^2 + c^2}{a^2 - bc}$$

A. 0

B. 1

C. 2 ✓

D. 3

Q12 Mathematics

When ₹391 is divided into three parts proportional to the fractions $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}$ then what will be the smallest part?

A. ₹136

B. ₹102 ✓

C. ₹120

D. ₹153

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Q13 Mathematics

Find the area of the greatest square that can be inscribed in a circle of circumference of 44 cm.

A. $49\sqrt{2}$ cm^2

B. 196 cm^2

C. 98 cm^2 ✓

D. 49 cm^2

Q14 Mathematics

If $1.25 \times 2.4 = 3$, then what will be the value of 7.50×0.4?

A. 30

B. 1.5

C. 3 ✓

D. 6

Q15 Mathematics

What is the number of single-digit prime numbers?

A. 7

B. 4 ✓

C. 5

D. 3

Q16 Mathematics

If $\left(\frac{3}{5}\right)^{2x-1} \times \left(\frac{3}{5}\right)^{4} = \left(\frac{3}{5}\right)^{15}$ find the value of x.

A. 12

B. 5

C. 0

D. 6 ✓

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Q17 Mathematics

A sum of money amounts to ₹850 in 3 years and ₹925 in 4 years with simple interest. What is the sum?

A. ₹625 ✓

B. ₹700

C. ₹850

D. ₹925

Q18 Mathematics

Which of the following fraction has terminating decimal expansion?

A. $\frac{104}{111}$

B. $\frac{11}{6}$

C. $\frac{19}{90}$

D. $\frac{6}{15}$ ✓

Q19 Mathematics

How many times is the HCF of 48, 36, 72 and 24 contained in their LCM?

A. 18

B. 10

C. 12 ✓

D. 15

Q20 Mathematics

What is the value of $(4 \div 2 \times 2) - [4 \div (2 \times 2)]$?

A. 3 ✓

B. 0

C. 2

D. 1

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Q21 Mathematics

₹1,540 are divided among A, B, C such that A receives $\frac{2}{9}$ as much as B and C receive together; and B gets $\frac{3}{11}$ of what A and C get together. Find the share of C.

A. ₹850

B. ₹930 ✓

C. ₹920

D. ₹900

Q22 Mathematics

Two poles of heights 16 m and 10 m are standing on a level ground at a distance of 8 m. Find the distance between their tops.

A. 12 m

B. 10 m ✓

C. 6 m

D. 8 m

Q23 Mathematics

Find the sum of the mean, the median and the mode of the given data.

10, 8, 18, 12, 12, 12

A. 36 ✓

B. 24

C. 12

D. 30

Q24 Mathematics

If $x + \frac{1}{y} = 1$ and $y + \frac{1}{z} = 1$ then find the value of $z + \frac{1}{x}$

A. 1 ✓

B. -1

C. 2

D. 0

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Q25 Mathematics

In the given data, if 22 is replaced by 52, find the difference between two medians.

26, 15, 8, 32, 18, 22

A. 3

B. 5

C. 6

D. 2 ✓

Q26 Mathematics

Each edge of a cube is decreased by 50%. Find the percentage decrease in its surface area.

A. 75% ✓

B. 25%

C. 60%

D. 50%

Q27 Mathematics

Two trains start at the same time from two stations and proceed towards each other at the speeds of 20 km/h and 25 km/h respectively. When they meet, it is found that one train has travelled 80 km more than the other. Find the distance between the two stations.

A. 740 km

B. 760 km

C. 700 km

D. 720 km ✓

Q28 Mathematics

300 m from the foot of a cliff on a level ground, the angle of elevation of the top of a cliff is 60°. Find the height of the cliff.

A. $200\sqrt{3}$ m

B. $150\sqrt{3}$ m

C. $300\sqrt{3}$ m ✓

D. $250\sqrt{3}$ m

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Q29 Mathematics

A and B can together finish a field work in 30 days. B and C can together finish it in 40 days while C and A together can finish it in 60 days. How long will they take to finish it together?

A. $26\frac{2}{3}$ days ✓

B. $28\frac{2}{3}$ days

C. $24\frac{2}{3}$ days

D. $23\frac{2}{3}$ days

Q30 Mathematics

How many prime numbers exist in the factorisation of $6^7 \times 35^3 \times 11^{10}$?

A. 15

B. 30 ✓

C. 20

D. 25

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Find the value of n in the given equation.

$$27^{1.5} \times 9^{1.25} \div 3^{5} = 3^{n}$$

A. 6

B. 4

C. 9

D. 2 ✓

Q2 Mathematics

The value of $24 + 13 - 5 \times \frac{1}{2} \times 10 - \{45 \div (17 - 2)\}$ is:

A. 9 ✓

B. -7

C. 18

D. 11

Q3 Mathematics

A and B both working together can finish a task in 10 days. B and C both working together can finish the same task in 15 days. A and C both working together can finish the task in 20 days. In how many days can A, B and C working together finish this task?

A. $9\frac{3}{13}$ days ✓

B. $9\frac{4}{13}$ days

C. $9\frac{1}{13}$ days

D. $9\frac{2}{13}$ days

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Q4 Mathematics

If $1.75 : x :: 5 : 8$, then the value of x is:

A. 2

B. 2.5

C. 2.8 ✓

D. 2.2

Q5 Mathematics

A circle $x^2 + y^2 = a^2$ passes through a point $(0, 4)$. What is the value of a?

A. 6

B. 4 ✓

C. 8

D. 5

Q6 Mathematics

The product of two numbers is 270. If their LCM is 90, then their HCF is:

A. 2

B. 4

C. 5

D. 3 ✓

Q7 Mathematics

The perimeter of a square and circumference a circle are the same. What is the ratio of the area of the square to that of the circle?

A. $\pi : 4$ ✓

B. $4 : \pi$

C. $2 : \pi$

D. $\pi : 2$

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Q8 Mathematics

The LCM and HCF of two numbers are 60 and 3, respectively. If the first number is 12, then the second number is:

A. 20

B. 25

C. 15 ✓

D. 10

Q9 Mathematics

Following the order of operations, the value of $81 - [20 + 7 \times (30 - 3 \times 9)]$ is:

A. 40 ✓

B. 20

C. 30

D. 0

Q10 Mathematics

The simple interest on a sum of money borrowed is ₹10 at the rate of 10% p.a for 10 years. How much is the sum of money borrowed?

A. ₹100

B. ₹10 ✓

C. ₹10,000

D. ₹1,000

Q11 Mathematics

A line passes through two points $(3,4)$ and $(4,5)$. What is the angle of the slope of this line?

A. 45° ✓

B. 60°

C. 30°

D. 75°

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Q12 Mathematics

The compound ratio of $1:2, 3:10$ and $10:21$ is:

A. $1:7$

B. $7:1$

C. $14:1$

D. $1:14$ ✓

Q13 Mathematics

What is the speed of a man, in km/h, who takes 10 min to run a distance of 1000 m?

A. 6 km/h ✓

B. 8 km/h

C. 2 km/h

D. 4 km/h

Q14 Mathematics

What is the mean of the first five prime numbers?

A. 5.6 ✓

B. 5.5

C. 5.7

D. 5.8

Q15 Mathematics

The difference between the compound and the simple interests on a certain sum of money for two years, at 5% per annum, is ₹1. The sum is:

A. ₹450

B. ₹550

C. ₹400 ✓

D. ₹500

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Q16 Mathematics

Which of the following real numbers has the maximum value? $\sqrt{2}, \sqrt[3]{3}, \sqrt[4]{4}$ and $\sqrt[6]{5}$

A. $\sqrt[4]{4}$

B. $\sqrt[3]{3}$ ✓

C. $\sqrt{2}$

D. $\sqrt[6]{5}$

Q17 Mathematics

What is the HCF of $\frac{1}{2}$ and $\frac{3}{4}$?

A. $\frac{3}{4}$

B. $\frac{1}{4}$ ✓

C. $\frac{4}{3}$

D. $\frac{1}{2}$

Q18 Mathematics

If $\frac{1}{x}+\frac{2}{3}=\frac{1}{2x}+\frac{3}{4}$, then the value of x is:

A. 2

B. 8

C. 6 ✓

D. 4

Q19 Mathematics

The sum of the square of the first ten natural numbers is:

A. 3025

B. 5050

C. 385 ✓

D. 55

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Q20 Mathematics

The sum of the roots of the equation $x^2 - 11x + 30 = 0$ is:

A. 15

B. 30

C. 11 ✓

D. 1

Q21 Mathematics

What will be the compound interest on ₹1,000 at 20% per annum for 1 year compounded half-yearly?

A. ₹200

B. ₹110

C. ₹210 ✓

D. ₹220

Q22 Mathematics

The third proportional to 4 and 9 is:

A. 81

B. $20\frac{1}{4}$ ✓

C. 36

D. 16

Q23 Mathematics

The value of $(\text{cosec}\theta + \cot\theta) \times (1 - \cos\theta)$ is:

A. $\cos\theta$

B. $\text{cosec}\theta$

C. $\sin\theta$ ✓

D. $\sec\theta$

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Q24 Mathematics

Find the value of $\frac{1+\sqrt{3}}{1-\sqrt{3}}+\frac{1-\sqrt{3}}{1+\sqrt{3}}$.

A. -4 ✓

B. $-2\sqrt{3}$

C. $2\sqrt{3}$

D. 4

Q25 Mathematics

If the area of a square is 1225 cm^2, then what will be the perimeter of the square?

A. 120 cm

B. 140 cm ✓

C. 130 cm

D. 150 cm

Q26 Mathematics

A raw data is in ascending order i.e. $3,4,8,x,x+1,12,14,15$. If the median of this data is 9.5, then the value of x is:

A. 7

B. 9 ✓

C. 4

D. 11

Q27 Mathematics

What is the LCM of $\frac{3}{10}$ and $\frac{2}{5}$?

A. $\frac{5}{6}$

B. $\frac{3}{4}$

C. $\frac{6}{5}$ ✓

D. $\frac{3}{25}$

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Q28 Mathematics

The value of $\frac{1+\tan^2\theta}{1+\cot^2\theta}$ is:

A. $\tan^2\theta$ ✓

B. $\cot^2\theta$

C. $\sec^2\theta$

D. $\operatorname{cosec}^2\theta$

Q29 Mathematics

A alone can finish a task in 10 days and B alone can finish the same task in 20 days. In how many days can A and B working together finish this task?

A. $6\frac{2}{3}$ days ✓

B. $6\frac{1}{3}$ days

C. $6\frac{1}{2}$ days

D. 6 days

Q30 Mathematics

A book is purchased for ₹1,000 and then sold for ₹1,200. Find the gain percentage.

A. 25%

B. 20% ✓

C. 15%

D. 10%

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Q1 Mathematics

Find the square root of $\frac{((0.091)(0.11))}{((0.91)(1.331))}$.

A. $\frac{1}{11}$ ✓

B. $\frac{3}{11}$

C. $\frac{2}{11}$

D. $\frac{4}{11}$

Q2 Mathematics

The difference between two numbers is 30% of their sum. The ratio of the larger number to the smaller number is:

A. 2 : 1

B. 17 : 15

C. 13 : 7 ✓

D. 15 : 7

Q3 Mathematics

If the income of Sachin is $\frac{50}{7}$% more than that of Sohan, the income of Sohan is less than that of Sachin approximately by:

A. 8.67%

B. 6.67% ✓

C. 5.67%

D. 7.67%

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Q4 Mathematics

Two workers X and Y are engaged to do a work. X working alone takes 12 hours more to complete the job than if both work together. If Y worked alone, he would need 27 hours more to complete the job than if they both worked together. How much time would they take to complete the work together?

A. 20 hrs.

B. 15 hrs.

C. 18 hrs. ✓

D. 16 hrs.

Q5 Mathematics

The difference between the interior and exterior angles at a vertex of a regular polygon is 160°. The number of the sides of the polygon is:

A. 40

B. 42

C. 36 ✓

D. 38

Q6 Mathematics

How many cubes of side 2 cm can be formed by melting a cuboid of length 6 cm, breadth 4 cm and height 4 cm?

A. 18

B. 16

C. 12 ✓

D. 14

Q7 Mathematics

Find the volume of a cuboid, if its length is 2 times more than its breadth and the breadth is 12 cm which is twice its height.

A. $2295\ cm^3$

B. $2952\ cm^3$

C. $2692\ cm^3$

D. $2592\ cm^3$ ✓

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Q8 Mathematics

If $(15)^{300}$ is divided by 16 then the remainder is:

A. 3

B. 2

C. 1 ✓

D. 4

Q9 Mathematics

The simplified value of $\frac{4}{21} \times \frac{7}{8} \times 6 + 17 - 12$ is:

A. 5

B. 8

C. 7

D. 6 ✓

Q10 Mathematics

$(53)^{15} - 1$ is exactly divisible by:

A. 19

B. 13 ✓

C. 11

D. 14

Q11 Mathematics

If a : b is equal to 3 : 4 and b : c is equal to 7 : 9, then c : a is equal to:

A. 12 : 7 ✓

B. 11 : 7

C. 7 : 11

D. 7 : 12

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Q12 Mathematics

Five numbers are in the ratio 1 : 2 : 3 : 4 : 5 and their sum is 30. The sum of second and fifth number is equal to:

A. 14 ✓

B. 15

C. 13

D. 12

Q13 Mathematics

If n is a natural number, then $n^3 - n$ is always divisible by _____.

A. 4

B. 8

C. 5

D. 6 ✓

Q14 Mathematics

If $x + y + z = 5$ and $xy + yz + zx = 8$, , then the value of $x^3 + y^3 + z^3 - 3xyz$ is:

A. 11

B. 5 ✓

C. 9

D. 7

Q15 Mathematics

The measure of the angle between the graph of linear equation $35x - 35y + 15 = 0$ and the x-axis is:

A. 45° ✓

B. 55°

C. 35°

D. 50°

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Q16 Mathematics

The smallest five digit number which is divisible by 12, 16, 24 and 28 is:

A. 10090

B. 10080 ✓

C. 10060

D. 10070

Q17 Mathematics

Which of the following expresses the prime factorisation of 54?

A. $3 \times 3 \times 6$

B. 5.4×10

C. 9×6

D. $3 \times 3 \times 3 \times 2$ ✓

Q18 Mathematics

If $3\tan\theta = 2$, then what will be the value of the following?

$$\frac{\left(\sqrt{13}\sin\theta - 3\tan\theta\right)}{\left(3\tan\theta + \sqrt{13}\cos\theta\right)}$$

A. $\frac{1}{\sqrt{13}}$

B. $\frac{2}{3}$

C. 0 ✓

D. $\frac{2}{\sqrt{13}}$

Q19 Mathematics

A sum of ₹7.25 is made up of 100 coins which are either 10 paise or 5 paise. How many coins are there of each kind respectively?

A. 45, 55 ✓

B. 15, 85

C. 25, 75

D. 35, 65

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Q20 Mathematics

Sachin and Anil start at the same time riding from Chandīgarh to Kalka that is 50 km away from Chandigarh. Sachin travels 6 km an hour slower than Anil. Anil reaches Kalka, and immediately embarks on the journey back to Chandigarh. He meets Sachin 20 km from Kalka. Find Sachin's speed.

A. 4.5 km/h ✓

B. 5.1 km/h

C. 4.9 km/h

D. 5.0 km/h

Q21 Mathematics

If $a : b = c : d = e : f = g : h = 1 : 3$, then what will be the value of the following?

$(pa + qc + re + sg) : (pb + qd + rf + sh)$

A. 1 : 2

B. 1 : 3 ✓

C. 1 : 5

D. 1 : 4

Q22 Mathematics

If θ is an acute angle and $\tan\theta + \cot\theta = 2$, then what will be the value of the following?

$\tan^{15}\theta + \cot^{20}\theta + 2\tan^{20}\theta\cot^{15}\theta$

A. 3

B. 6

C. 4 ✓

D. 5

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Q23 Mathematics

If the length, breadth and height of a room are 30 m, 20 m, and 40 m respectively, then what will be the area of the four walls of the room?

A. $1800\ m^2$

B. $3600\ m^2$

C. $4000\ m^2$ ✓

D. $4500\ m^2$

Q24 Mathematics

The present ages of Ram and Shyam are in the ratio 7 : 8 respectively. After nine years this ratio will become 8 : 9. The present ages (in years) of Ram and Shyam respectively are:

A. 63, 72 ✓

B. 73, 64

C. 72, 63

D. 64, 73

Q25 Mathematics

Find four consecutive numbers such that twice the first, three times the second, four times the third and five times the fourth together make 236.

A. 17, 18, 19, 20

B. 15, 16, 17, 18 ✓

C. 19, 20, 21, 22

D. 18, 19, 20, 21

Q26 Mathematics

The ratio of the incomes of two persons is 7 : 5 and that of their respective expenditures is 9 : 7. Find the respective income of each person if they save ₹1,700 and ₹1,100 respectively.

A. ₹5,500, ₹4,500

B. ₹3,500, ₹2,500 ✓

C. ₹5,000, ₹2,000

D. ₹4,500, ₹3,500

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Q27 Mathematics

If $\sec\theta + \tan\theta = 2 - \sqrt{3}$, then the value of $\sqrt{3}\sin\theta + \cos\theta$ is:

A. 1

B. 2

C. 4

D. 3

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q28 Mathematics

If $\cos^4\theta - \sin^4\theta = \frac{3}{5}$, then what will be the value of the following?

$1 - 2\sin^2\theta + 2\sin\theta\cos\theta$

A. $\frac{8}{5}$

B. 0

C. $\frac{9}{5}$

D. $\frac{7}{5}$ ✓

Q29 Mathematics

Amritsar Shatabdi Express leaves Delhi at 4:30 p.m. and reaches Amritsar at 10:30 p.m. The average speed of the train is 75 km/h. What is the distance from Delhi to Amritsar?

A. 450 km ✓

B. 550 km

C. 500 km

D. 400 km

Q30 Mathematics

$11^8 - 13$ when divided by 10 would leave the remainder:

A. 8 ✓

B. 7

C. 6

D. 9

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

The number $0.\overline{13}$ in the form of $\frac{p}{q}$ is equal to:

A. $\frac{99}{13}$

B. $\frac{31}{99}$

C. $\frac{39}{99}$

D. $\frac{13}{99}$ ✓

Q2 Mathematics

If the selling price of 10 pens is equal to the cost price of 15 pens, then the gain per cent is:

A. 50% ✓

B. 70%

C. 60%

D. 40%

Q3 Mathematics

The value of $9.377 - [3 + 0.5 \times (3.1 - 2.3 \times 1.02)]$ is:

A. 6 ✓

B. 3.77

C. 6.3

D. 3.79

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Q4 Mathematics

If $\frac{\sqrt{7}-1}{\sqrt{7}+1} - \frac{\sqrt{7}+1}{\sqrt{7}-1} = a + b\sqrt{7}$, then the values of a and b are:

A. $a = \sqrt{7}$ and $b = \frac{-2\sqrt{7}}{3}$

B. $a = 0$ and $b = 0$

C. $a = 0$ and $b = \frac{(-2)}{3}$ ✓

D. $a = -\frac{3}{2}$ and $b = \sqrt{7}$

Q5 Mathematics

A steamer goes downstream and covers the distance between two ports in 6 h. It covers the same distance upstream in 8 h. If the speed of the stream is 3 km/h, then the speed of the streamer in still water is:

A. 21 km/h ✓

B. 10 km/h

C. 10.375 km/h

D. 20.5 km/h

Q6 Mathematics

The length of a rectangular solar panel is 5% more than its breadth. If the area of the solar panel is 210 m^2, find its breadth.

A. 10 m

B. $20\sqrt{2}$ m

C. 210 m

D. $10\sqrt{2}$ m ✓

Q7 Mathematics

Which one of the following triplets can be measures of the sides of a triangle?

A. 1, 1.5, 3

B. 5, 7, 4 ✓

C. 11, 3, 7

D. 1, 2, 4

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Q8 Mathematics

Which of the following is correct?

A. Both $1 - \cos^2 a - \sin^2 a = 0$ and $\frac{2\tan 30}{1 - \tan^2 30} = \tan 60$ ✓

B. $\frac{2\tan 30}{1 - \tan^2 30} = \tan 60$

C. $9\sec^2 a - 9\tan^2 a = 2$

D. $1 - \cos^2 a - \sin^2 a = 0$

Q9 Mathematics

In a right circular cylinder, the ratio of the curved surface area to the total surface area is 2 : 5. Find the ratio of the height to the radius of the cylinder.

A. 2 : 5

B. 5 : 3

C. 3 : 4

D. 2 : 3 ✓

Q10 Mathematics

The negative of a non-zero rational number is:

A. a rational number ✓

B. an irrational number

C. zero

D. surd

Q11 Mathematics

The product of two positive numbers is 972 and their quotient is $\frac{4}{3}$. The numbers are:

A. 46 and 56

B. 36 and 27 ✓

C. 26 and 27

D. 26 and 36

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Q12 Mathematics

The largest four-digit number which is exactly divisible by 77 is:

A. 9977

B. 9933 ✓

C. 9693

D. 6993

Q13 Mathematics

If one-ninth of one-eighth of one-seventh of one-fifth of one-fourth of one-third of one-half of a number is 32, then the number is:

A. $\left(\frac{32}{9}\right)$

B. 2345789

C. 9875432

D. 1935360 ✓

Q14 Mathematics

If $x^4 + \frac{1}{x^4} = 6239$, and $x > 0$, then the value of $x + \frac{1}{x}$ is:

A. $\frac{1}{\sqrt{12}}$

B. 9 ✓

C. 10

D. $\sqrt{6239}$

Q15 Mathematics

What is the least number, which, when divided by 45 and 55 leaves a remainder of 3 in each case?

A. 498 ✓

B. 2475

C. 825

D. 625

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Q16 Mathematics

If the radius of a sphere is tripled, then its surface area is increased by:

A. 300%

B. 400%

C. 800% ✓

D. 900%

Q17 Mathematics

Two parallelograms are on equal bases and between the same parallels. The ratio of their areas is:

A. 1 : 2

B. 1 : 1 ✓

C. 2 : 1

D. 3 : 1

Q18 Mathematics

When 30% of a number is added to another number, the second number becomes 140% of itself. The ratio of the first number to the second number is:

A. 4 : 3 ✓

B. 1 : 3

C. 3 : 2

D. 2 : 4

Q19 Mathematics

The value of $\sqrt{(10 + \sqrt{(200 + \sqrt{(596 + \sqrt{841})})}}$ is:

A. $5\sqrt{5}$

B. $5\sqrt{1}$ ✓

C. $5\sqrt{3}$

D. $5\sqrt{2}$

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Q20 Mathematics

If $a : b = 2 : 5, b : c = 5 : 8, c : d = 8 : 11$, then $a : d$ is:

A. $5 : 8$

B. $2 : 11$ ✓

C. $3 : 5$

D. $2 : 7$

Q21 Mathematics

36 men can do a task in 25 days. If the task is to be finished in 60 days, then the number of men required are:

A. 15 ✓

B. 30

C. 20

D. 25

Q22 Mathematics

If A and B are acute angles such that $\tan A = \cot B$, then the value of $A + B$ is:

A. 180°

B. 90° ✓

C. 0°

D. 360°

Q23 Mathematics

If a sum of money doubles itself in 10 years, then the rate of simple interest is:

A. 20%

B. 10% ✓

C. 10.50%

D. 20.50%

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Q24 Mathematics

If $x\%$ of y is 2000 and $y\%$ of z is 4000, then the relation between x and z is:

A. $z - 2 = x$

B. $z = 2x$ ✓

C. $z + 2 = x$

D. $z = \frac{x}{2}$

Q25 Mathematics

The ratio of the HCF to the LCM of the numbers $\sqrt{64}$ and 16 is:

A. 2 : 1

B. 1 : 1

C. 1 : 4

D. 1 : 2 ✓

Q26 Mathematics

Ravi took a loan of ₹16,000 for one year at 20% interest p.a. compounded quarterly. The amount that Ravi has to pay after one year is:

A. ₹48,897.30

B. ₹19,448.10 ✓

C. ₹12,784.25

D. ₹38,896.20

Q27 Mathematics

If among four numbers, the second is thrice of the first, the third is four times the second, the fourth is five times the third, and the mean of the four numbers is 1900, then the smallest number is:

A. 1200

B. 6000

C. 100 ✓

D. 50

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Q28 Mathematics

The third proportional of 10 and 20 is:

A. 200

B. 20

C. 10

D. 40 ✓

Q29 Mathematics

A train, 100 m long, is running at a speed of 64 km/h. Find the time taken by it to pass a man who is running at 8 km/h in the direction opposite to that of the train.

A. 5 sec ✓

B. 10 sec

C. 15 sec

D. 64 sec

Q30 Mathematics

For a frequency distribution, mean, median and mode are connected by the relation:

A. mean = (3 median — mode) / 2 ✓

B. mean = 2 / (3 median — mode)

C. mean = (3 median — 2 mode) / 2

D. mean = (3 median + mode) / 2

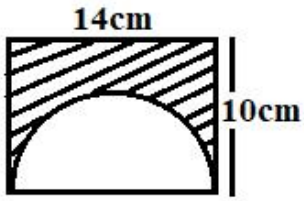
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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A semicircle has been drawn on the length of a rectangle. The area of the shaded region in the figure is:



A. $129\ cm^2$

B. $77\ cm^2$

C. $63\ cm^2$ ✓

D. $14\ cm^2$

Q2 Mathematics

One third of one fourth of two seventh of 12 is:

A. $\frac{2}{7}$ ✓

B. $\frac{7}{2}$

C. $\frac{32}{7}$

D. 14

Q3 Mathematics

The least multiple of 14 which when divided by 6, 8, 12 leaves remainder 4, 6 and 10 respectively, is:

A. 40

B. 46

C. 336

D. 70 ✓

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Q4 Mathematics

A and B together can finish a task in 24 days. They worked at it for 18 days and then C finished the remaining work in 10 days. In how many days can A, B and C together finish the task?

A. 32 days

B. 34 days

C. 24 days

D. 15 days ✓

Q5 Mathematics

65% of the first number is 130 and 40% of the second number is 100. The ratio of the first number to the second number is:

A. 8 : 5

B. 4 : 5 ✓

C. 5 : 8

D. 1 : 2

Q6 Mathematics

A train travelling at a speed of 84 km/h passes a post in 9 seconds and a platform in 30 seconds. What is the length of the platform?

A. 480 m

B. 500 m

C. 490 m ✓

D. 540 m

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Q7 Mathematics

Solve the following.

$$\frac{\sqrt{144}}{6} \times \frac{\sqrt{121}}{8} \times \frac{132}{\sqrt{484}} = ?$$

A. $\frac{3}{4}$

B. 4

C. $\frac{33}{2}$ ✓

D. $\frac{155}{36}$

Q8 Mathematics

A fruit seller sells 16 oranges for ₹42 thereby gaining 25%. How many oranges did he buy for ₹42?

A. 21

B. 18

C. 22

D. 20 ✓

Q9 Mathematics

A can finish a task in 18 days and B can finish the same task in 15 days. They started working together but B left 7 days before the task finished. For how many days did A and B work together?

A. 5 ✓

B. 12

C. 7

D. 8

Q10 Mathematics

For a given fraction, how many equivalent fractions can be formed?

A. Infinite ✓

B. Only 1

C. Only 2

D. Only 3

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Q11 Mathematics

On what sum will the compound interest, at the rate of $12\frac{1}{2}\%$ per annum for 2 years compounded annually, be ₹6,800?

A. ₹27,200

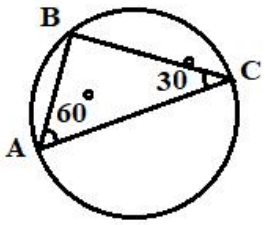
B. ₹25,600 ✓

C. ₹54,400

D. ₹27,260

Q12 Mathematics

In the given figure, A, B and C are three points on a circle. If AB = 3 cm and BC = 4 cm, then the measure of the radius of the circle is:



A. $\frac{5}{2}$ cm ✓

B. $\frac{7}{2}$ cm

C. 5 cm

D. 3 cm

Q13 Mathematics

The area of four side walls of a cubical box is 36 cm^2. Its edge is:

A. 6 cm

B. 3 cm ✓

C. 9 cm

D. $\sqrt{6}$ cm

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Q14 Mathematics

Solve the following.

$17.6 + 1.76 + 0.176 + 0.0176 + 0.00176 = ?$

A. 19.55536 ✓

B. 19.55556

C. 19.55336

D. 19.55356

Q15 Mathematics

A man sells a washing machine for ₹21,600 gaining thereby 8%. At what price should he sell it to gain 20%?

A. ₹28,000

B. ₹24,000 ✓

C. ₹23,200

D. ₹26,000

Q16 Mathematics

Solve the following.

$2\sin^2 30^\circ + \cos^2 60^\circ - \frac{3}{4}\cot^2 30^\circ = ?$

A. -1

B. $\frac{-3}{2}$ ✓

C. $\frac{1}{2}$

D. 0

Q17 Mathematics

The number of prime numbers less than 20 is:

A. 7

B. 9

C. 10

D. 8 ✓

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Q18 Mathematics

The HCF of 15, 25 and 42 is:

A. 1 ✓

B. 82

C. 27

D. 1050

Q19 Mathematics

A bag contains balls numbered 1, 2, 3, ... 20. One ball is drawn from the bag at random. What is the probability that the number on the ball drawn is divisible by 3 or 5?

A. $\frac{2}{5}$

B. $\frac{1}{10}$

C. $\frac{1}{2}$

D. $\frac{9}{20}$ ✓

Q20 Mathematics

A bag contains balls numbered 1, 2, 3, ... 30. One ball is drawn from the bag at random. What is the probability that the number on the ball drawn is divisible by 4 or 6?

A. $\frac{3}{10}$

B. $\frac{1}{3}$ ✓

C. $\frac{2}{5}$

D. $\frac{1}{15}$

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Q21 Mathematics

If the sum of the squares of roots of the polynomial $x^2 + 8x + 15k$ is 34, then what will be the value of k?

A. 1 ✓

B. 2

C. −1

D. 3

Q22 Mathematics

Abdul earned ₹12,600 as simple interest on ₹70,000 at the rate of 12% per annum in a certain period. Find the period.

A. 3 years

B. $\frac{3}{2}$ years ✓

C. $\frac{2}{3}$ years

D. 15 years

Q23 Mathematics

A father is twice as old as his son. Twenty years ago, the age of the father was 12 times his son's age at that time. Difference in the present ages (in years) of the father and son is:

A. 44

B. 12

C. 22 ✓

D. 2

Q24 Mathematics

Given data is arranged in an ascending order. If the median is 10, then find the value of p.

3, 5, 6, 2p + 3, 3p + 2, 15, 25, 51.

A. 2

B. 3 ✓

C. 38

D. 27.5

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Q25 Mathematics

If $a - b = 5$ and $a^3 - b^3 = 5$, then what will be the value of ab?

A. -8 ✓

B. $-\frac{26}{3}$

C. $\frac{26}{3}$

D. 8

Q26 Mathematics

John and Joseph have ₹19,000 and ₹26,000 respectively with them. If Joseph gives ₹1,000 to John, then the ratio of the amount with John and that with Joseph is:

A. 19 : 26

B. 2 : 3

C. 4 : 5 ✓

D. 20 : 27

Q27 Mathematics

Solve the following.

$2 - [(-5) \times (-4) - (3 - 5)] = ?$

A. -8

B. 20

C. -20 ✓

D. 8

Q28 Mathematics

Ages of Keshav and Vipul are in the ratio 9 : 10. Twelve years hence their ages will be in the ratio 13 : 14. Keshav's present age is:

A. 42 years

B. 30 years

C. 39 years

D. 27 years ✓

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Q29 Mathematics

Solve the following.

$$\frac{70 + 5 \times 2 \div 10 + 15 - 10}{25 \times 6 + 2} = ?$$

A. $\frac{19}{50}$

B. $\frac{53}{114}$

C. $\frac{5}{18}$

D. $\frac{1}{2}$ ✓

Q30 Mathematics

What is the LCM of $\frac{1}{6}, \frac{1}{4}$ and $\frac{1}{2}$?

A. 1

B. $\frac{1}{2}$ ✓

C. $\frac{1}{6}$

D. $\frac{1}{12}$

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Mathematics

30 Questions • Answer Key

Q1 Mathematics

In a mixture of milk and water of 120 litres, the ratio of milk to water is $2:1$. If the ratio of milk to water needs to be $1:2$, then the amount of water that needs to be added to the mixture is:

A. 110 litres

B. 120 litres ✓

C. 140 litres

D. 130 litres

Q2 Mathematics

A train travelling at a speed of 96 km/h crosses a post in 12 seconds and a platform in 30 seconds. What is the length of the platform?

A. 540 m

B. 640 m

C. 450 m

D. 480 m ✓

Q3 Mathematics

Find the value of $\sqrt{248+\sqrt{51+\sqrt{169}}}$.

A. 25

B. 36

C. 16 ✓

D. 9

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Q4 Mathematics

The chord of contact of tangents drawn from a point on the circle $x^2 + y^2 = a^2$ *to the circle* $x^2 + y^2 = b^2$ touches the circle $x^2 + y^2 = c^2$ such that $b^m = a^n c^p$, where $m, n, p \in N$. Find the value of $m + n + p + 10$.

A. 8

B. 10

C. 14 ✓

D. 12

Q5 Mathematics

If $\frac{2}{5} + \frac{2}{10} = \frac{N+1}{N+5}$, then find the value of N.

A. 5 ✓

B. $\frac{5}{9}$

C. 9

D. 4

Q6 Mathematics

If a point (1, 2) is translated 2 units through the positive direction of x-axis and then the tangents drawn from that point to the circle $x^2 + y^2 = 9$, find the angle between the tangents.

A. $\tan^{-1}\left(\frac{5}{3}\right)$

B. $2\tan^{-1}\left(\frac{1}{3}\right)$

C. $2\tan^{-1}\left(\frac{3}{2}\right)$ ✓

D. $2\tan^{-1}\left(\frac{2}{3}\right)$

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Q7 Mathematics

The sum of two positive numbers is 27, while the difference of their squares is 81. What is the value of the greater of the two numbers?

A. 16

B. 14

C. 12

D. 15 ✓

Q8 Mathematics

Find the value of N in the following equation $\frac{1}{3}+\frac{2}{9}=\frac{N+1}{N+5}$.

A. 1

B. 3

C. 4 ✓

D. 0

Q9 Mathematics

P and Q started a business with equal capital. P withdrew from the business at the end of 4 months. If, at the end of the year, the business made a profit of ₹6,400, then the share of P is:

A. ₹1,600 ✓

B. ₹3,200

C. ₹1,800

D. ₹1,750

Q10 Mathematics

The LCM of 144, 180 and 384 is:

A. 5760 ✓

B. 3760

C. 5560

D. 1760

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Q11 Mathematics

If A's salary is 50% more than that of B, then by what percentage is B's salary less than that of A?

A. $23\frac{1}{3}\%$

B. $13\frac{1}{3}\%$

C. $33\frac{1}{3}\%$ ✓

D. $30\frac{1}{3}\%$

Q12 Mathematics

A circle has a radius of 3 units and its centre lies on the line $y = x - 1$. Find the equation of the circle if it passes through point $(7, 3)$.

A. $x^2 + y^2 - 8x - 6y - 16 = 0$

B. $x^2 + y^2 - 8x - 6y + 16 = 0$ ✓

C. $x^2 + y^2 + 8x + 6y + 16 = 0$

D. $x^2 + y^2 + 8x - 6y + 16 = 0$

Q13 Mathematics

The LCM of 248 and 868 is 1736. The HCF of the same two numbers is:

A. 124 ✓

B. 248

C. 868

D. 1736

Q14 Mathematics

A locomotive engine without any wagon can go at a speed of 50 km per hour and its speed diminishes by a quantity which varies as the square root of the number of wagons attached. If with 25 wagons its speed is 35 km per hour, then what is the greatest number of wagons that can be attached, if the speed is NOT to fall below 11 km per hour?

A. 169 ✓

B. 144

C. 196

D. 225

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Q15 Mathematics

A truck covers a distance of 92.5 km in 2.5 h. If the truck is travelling at the same speed throughout the journey, then what is the distance covered by it in 1 h?

A. 57 km

B. 67 km

C. 47 km

D. 37 km ✓

Q16 Mathematics

A path, 5 m, wide runs around and outside a rectangular plot of land of length 10 m and breadth 8 m. The area of path is:

A. 280 m^2 ✓

B. 380 m^2

C. 260 m^2

D. 160 m^2

Q17 Mathematics

A, B and C can complete a job in 15 days, 20 days and 30 days, respectively. If they earn ₹270 together, then the share of B is:

A. ₹90 ✓

B. ₹99

C. ₹96

D. ₹93

Q18 Mathematics

The number that should be subtracted from 510 and 270 to get 24 as the GCD is:

A. 16

B. 42

C. 24

D. 6 ✓

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Q19 Mathematics

Find the smallest number, which when divided by 35, 40 and 60 leaves a remainder 7 in each case.

A. 893

B. 800

C. 847 ✓

D. 814

Q20 Mathematics

If x is 20% more than y, then y is _____ less than x.

A. $16\frac{1}{3}\%$

B. $16\frac{2}{3}\%$ ✓

C. $83\frac{2}{3}\%$

D. $83\frac{1}{3}\%$

Q21 Mathematics

Kiran can complete a task in 15 days. He works for 5 days and then leaves. If Venkat completes the remaining task in 30 days, then in how many days can Venkat alone complete the same task?

A. 45 ✓

B. 50

C. 40

D. 48

Q22 Mathematics

If $\frac{\sqrt{5}-1}{\sqrt{5}+1}-\frac{\sqrt{5}+1}{\sqrt{5}-1}=a+b\sqrt{5}$, then the value of $(a+b)(a-b)\div a^2+b^2$ is:

A. -2

B. 0

C. -1 ✓

D. 3

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Q23 Mathematics

Find the length of the tangent from any point on the circle $x^2 + y^2 + 2011x + 2012y + 2013 = 0$ to the circle $x^2 + y^2 + 2011x + 2012y + 2014 = 0$.

A. 5

B. 1

C. 0

D. No common tangent can be drawn. ✓

Q24 Mathematics

Find the value of $\sqrt{54} \times \sqrt{6}$.

A. 45

B. 25

C. 18 ✓

D. 65

Q25 Mathematics

If $\frac{\pi}{2} < \theta < \frac{3\pi}{2}$, then $\sqrt{\frac{1-\sin\theta}{1+\sin\theta}}$ is:

A. $tan\theta - sec\theta$ ✓

B. $\sin\theta - \sec\theta$

C. $\tan\theta + \sec\theta$

D. $\cos\theta - \sec\theta$

Q26 Mathematics

Find the fourth proportional to 3, 5 and 15.

A. 25 ✓

B. 20

C. 35

D. 15

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Q27 Mathematics

If $\tan A + \tan B = p$ and $\cot A + \cot B = q$, then $\cot(A + B)$ is:

A. $\frac{p - q}{pq}$

B. $\frac{q - p}{pq}$ ✓

C. $\frac{pq}{p - q}$

D. $\frac{pq}{p + q}$

Q28 Mathematics

A sum of ₹400 would become ₹441 after 2 years at r % p.a. compound interest. Find the value of r.

A. 6%

B. 5% ✓

C. 7%

D. 8%

Q29 Mathematics

A, B and C start a business jointly. Twice the capital of A is equal to thrice the capital of B. The capital of B is four times the capital of C. Find the share of B if the annual profit is ₹2,97,000.

A. ₹1,08,800

B. ₹10,800

C. ₹1,08,000 ✓

D. ₹18,000

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Q30 Mathematics

The non-terminating repeating decimal among the following fractions is:

A. $\frac{13}{4}$

B. $\frac{7}{5}$

C. $\frac{3}{40}$

D. $\frac{100}{11}$ ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

By selling a table for ₹330, a trader gains 10%. Find the cost price of the table.

A. ₹200

B. ₹100

C. ₹300 ✓

D. ₹400

Q2 Mathematics

Sabiha purchased 240 cups for her shop at ₹8 each. During transportation, 24 cups got damaged, and she sold the remaining cups at ₹12 each. Find her overall percentage profit.

A. 40%

B. 35% ✓

C. 30%

D. 45%

Q3 Mathematics

Read the given data and answer the question that follows.

2, 5, 15, 25, 20, 12, 8, 7, 6, 16, 21, 17, 30, 32, 23, 40, 51, 15, 2, 9, 57, 19, 25

If the given data is grouped in the classes 0–5, 5–10, 10–15, and so on, then what will be the frequency of the class 20–25?

A. 4

B. 3 ✓

C. 5

D. 2

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Q4 Mathematics

Kumar lent an amount to Arif at a simple interest rate of 10% p.a. for 3 years, and Arif lent this amount to Naresh at a simple interest rate of 20% p.a. for 3 years. If the interest Arif received was ₹1,560 after 3 years, then what was the amount that Kumar had lent to Arif?

A. ₹6,200

B. ₹5,600

C. ₹5,400

D. ₹5,200 ✓

Q5 Mathematics

Histogram is used to find:

A. arithmetic mean graphically

B. Median, mode and mean graphically

C. median graphically

D. mode graphically ✓

Q6 Mathematics

The area of a rectangle with a length of 121 m is the same as that of a square with a side of 44 m. Find the width of the rectangle.

A. 17 m

B. 14 m

C. 15 m

D. 16 m ✓

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Q7 Mathematics

A can finish a task in 20 days and B can finish the same task in half the time taken by A. Working together, what part of the task can they finish in a day?

A. $\frac{2}{6}$

B. $\frac{1}{2}$

C. $\frac{3}{20}$ ✓

D. $\frac{1}{18}$

Q8 Mathematics

A man rides his bicycle for 10 km at an average speed of 12 km/h and further travels 12 km at an average speed of 10 km/h. What is his approximate average speed for the entire trip?

A. 10.8 km/h ✓

B. 8.10 km/h

C. 8.19 km/h

D. 8 km/h

Q9 Mathematics

Which of the following is INCORRECT?

A. 1 is the multiplicative identity of rational numbers.

B. Commutative property holds in the set of natural numbers under addition.

C. Every rational number is a whole number. ✓

D. Reciprocal of 1 is 1.

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Q10 Mathematics

Find the cost of carpeting a 15-m-long and 11-m-wide room with a 75-cm-wide carpet, if the price of the carpet is ₹13 per meter (not considering the cost of labour).

A. ₹2,860 ✓

B. ₹2,960

C. ₹2,760

D. ₹2,660

Q11 Mathematics

The number of balls of radius 2 cm that can be made from a solid sphere of radius 4 cm is:

A. 36

B. 64

C. 8 ✓

D. 16

Q12 Mathematics

If pq is a two-digit number, then pq – qp will be completely divisible by:

A. 9 ✓

B. 7

C. 6

D. 5

Q13 Mathematics

The sum of two numbers is 15. If the sum of their reciprocals is $\frac{3}{10}$, then find the two numbers?

A. 7,8

B. 5,10 ✓

C. 6,9

D. −5,20

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Q14 Mathematics

The mean of x and y is 400, and the ratio of x to y is $3:7$. What is the value of $y - x$?

A. 130

B. 800

C. 320 ✓

D. 230

Q15 Mathematics

The greatest number that divides 155 and 307 leaving remainders 5 and 7, respectively, is:

A. 25

B. 30

C. 150 ✓

D. 15

Q16 Mathematics

The ratio of the sums of money Arun and Ahaan had is 9 : 5. If Arun gives ₹12 from his share to Ahaan, then the ratio will change to 4 : 3. How much money did Arun have initially?

A. ₹90

B. ₹144

C. ₹108 ✓

D. ₹126

Q17 Mathematics

Three pieces of aluminium rod of different lengths, 44cm, 22cm and 55cm respectively, are given to a boy. He has to cut them into rods of same length such that no aluminium waste is left. The maximum length (in cm) of such rod will be:

A. 16.5 cm

B. 22 cm

C. 5.5 cm

D. 11 cm ✓

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Q18 Mathematics

How many kilometres are there in 1 mm?

A. Both $\frac{1}{100000}$ and 0.000001

B. 0.0000001

C. 0.000001 ✓

D. $\frac{1}{100000}$

Q19 Mathematics

Which of the following equations is INCORRECT?

A. $8 \times 3 + 63 \div 9 - 6 = 25$

B. $42 \div 6 + (2 \times 5) \times 1 + 9 = 26$

C. $13 - 7 + 8 \times 9 + 63 \div 7 = 86$ ✓

D. $9 \times 4 + (12 + 2) - 30 \div 3 = 40$

Q20 Mathematics

A shopkeeper divided a sum of ₹250,000 between his three sons in a proportion of 30%, 45% and 25% respectively. How much did each son inherit?

A. ₹75,000, ₹1,13,500 and ₹61,500

B. ₹75,000, ₹1,14,500 and ₹60,500

C. ₹75,000, ₹1,12,000 and ₹63,000

D. ₹75,000, ₹1,12,500 and ₹62,500 ✓

Q21 Mathematics

The ratio of the length of a tree to its shadow is $1 : \frac{1}{\sqrt{3}}$. The angle of the sun's elevation is:

A. $75°$

B. $30°$

C. $60°$ ✓

D. $45°$

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Q22 Mathematics

If $\frac{\sqrt{5}-1}{\sqrt{5}+1} = a + b\sqrt{5}$, then find the value of a and b.

A. $a = \frac{3}{2}, b = \left(-\frac{1}{2}\right)$ ✓

B. $a = 0, b = 0$

C. $a = 0, b = \frac{-\sqrt{5}}{2}$

D. $a = \frac{-\sqrt{5}}{2}, b = 0$

Q23 Mathematics

Two numbers are in the ratio of $4 : 5$. If the sum of numbers is 63, find the numbers?

A. 27 and 36

B. 18 and 45

C. 28 and 35 ✓

D. 30 and 33

Q24 Mathematics

Find the median and the mode for the following set of numbers.

2, 2, 3, 5, 5, 5, 6, 8, 9

A. Median $= 5$, Mode $= 5$ ✓

B. Median $= 0$, Mode $= 9$

C. Median $= 2$, Mode $= 5$

D. Median $= 5$, Mode $= 2$

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Q25 Mathematics

Select the number that can replace both the instances of '*' in the following equation to make it correct.

$$\left(\frac{*}{21}\right) \times \left(\frac{*}{189}\right) = 1$$

A. 63 ✓

B. 147

C. 21

D. 4848

Q26 Mathematics

In mixture A, there is 5 L of syrup in 6 L of water. In mixture B, there is 3.5 L of syrup in 5.5 L of water. In which of the two mixtures is the concentration of syrup greater?

A. more information is required to be able to determine where the concentration of syrup is more

B. the concentration of syrup is same in both A and B

C. B

D. A ✓

Q27 Mathematics

Which of the following rational numbers have a non-terminating decimal expansion?

A. $\frac{11}{1000}$

B. $\frac{23}{2^3 5^2}$

C. $\frac{19}{2^2 5^7 7^5}$ ✓

D. $\frac{4^2}{3^2 5^2}$

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Q28 Mathematics

A man travelling in a train notices that he can count 21 telephone posts in 1 min. If the poles are 50 m apart, then at what speed is the train travelling?

A. 50 km/h

B. 21 km/h

C. 60 km/h ✓

D. 65 km/h

Q29 Mathematics

Which of the following statements is correct?

1. The angle between two tangents to a circle may be $0°$.

2. If a transversal intersects two lines such that a pair of alternate interior angles is equal, then the two lines are parallel.

3. The tangents at the end points of a diameter of a circle are perpendicular.

A. Only 1

B. Both 1 and 2, but not 3 ✓

C. Only 3

D. Only 2

Q30 Mathematics

$119^2 - 111^2$ is a/an:

A. Square number

B. Perfect number

C. Prime number

D. Composite number ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

If the selling price of an article is $\frac{5}{4}$ of its cost price, then the profit obtained in the transaction is:

A. 30%

B. 40%

C. 35%

D. 25% ✓

Q2 Mathematics

The perimeter of a rectangle is 120 m. If its length is twice its breadth, then its area is:

A. 500 m^2

B. 600 m^2

C. 700 m^2

D. 800 m^2 ✓

Q3 Mathematics

In an examination, 90% of the students passed and 600 students failed. How many students appeared for the examination?

A. 5500

B. 5250

C. 6000 ✓

D. 5750

Q4 Mathematics

Two numbers are in the ratio of 3 : 2 and their LCM is 96. Find the numbers.

A. 47 and 32

B. 46 and 32

C. 48 and 32 ✓

D. 46 and 31

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Q5 Mathematics

Three containers contain 72 litres, 90 litres and 144 litres of milk respectively. What should be the biggest 'measuring-can', which can measure all the different quantities exactly (Without a remainder)?

A. 13 litre

B. 11 litre

C. 17 litre

D. 18 litre ✓

Q6 Mathematics

Which of the following is closest to zero?

A. $1-(0.09)^2$

B. $(1-0.09)^2$

C. 0.009

D. $(0.09)^2$ ✓

Q7 Mathematics

Find the value of $\frac{(0.01)^2+(0.22)^2+(0.333)^2+(0.4444)^2}{(0.001)^2+(0.022)^2+(0.0333)^2+(0.04444)^2}$.

A. 125

B. 100 ✓

C. 50

D. 75

Q8 Mathematics

Which of the following fractions does NOT lie between $\frac{7}{18}$ and $\frac{3}{5}$?

A. $\frac{2}{5}$

B. $\frac{1}{2}$

C. $\frac{5}{12}$

D. $\frac{1}{3}$ ✓

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Q9 Mathematics

If p is the length of a rectangle and its width is one-third of its length, then the area of the rectangle will be:

A. $\frac{p^2}{3}$ ✓

B. $\frac{p^2}{5}$

C. p^2

D. $\frac{p^2}{4}$

Q10 Mathematics

If X's income is 40% less than that of Y, then Y's income is approximately what percentage more than that of X?

A. 67.33%

B. 66.33%

C. 67.67%

D. 66.67% ✓

Q11 Mathematics

In an isosceles ΔABC, if the measure of $\angle A$ is twice that of the base $\angle B$, then the measure of $\angle C$ will be:

A. 45° ✓

B. 90°

C. 33°

D. 30°

Q12 Mathematics

A sum of ₹1,000 amounts to ₹1,140 in 2 years at simple interest. If the interest rate is increased by 4%, the original sum would amount to:

A. ₹1,200

B. ₹1,220 ✓

C. ₹1,160

D. ₹1,180

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Q13 Mathematics

Find the mean of $x + 77$, $x + 7$, $x + 5$, $x + 3$ and $x - 2$.

A. $x - 3$

B. $x + 8$

C. $x - 8$

D. $x + 18$ ✓

Q14 Mathematics

Which of the following is the correct order of the Roman numerals C, D, L, X and M?

A. $M > D > C > L > X$ ✓

B. $X > M > C > D > L$

C. $D > M > C > L > X$

D. $M > C > D > L > X$

Q15 Mathematics

A piece of wire is bent to form a circle with a radius of 70 cm. If the same piece of wire is bent to form a square, the length of the side of the square will be _____. [Use $\pi = \frac{22}{7}$]

A. 140 cm

B. 110 cm ✓

C. 120 cm

D. 160 cm

Q16 Mathematics

What is the median of the following data?

78, 56, 22, 34, 45, 54, 39, 68, 54, 84

A. 55

B. 51

C. 54 ✓

D. 53

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Q17 Mathematics

The sum and difference of the LCM and HCF of two numbers are 682 and 638 respectively. If the sum of the two numbers is 286, find the numbers.

A. 246 and 40

B. 220 and 66 ✓

C. 226 and 60

D. 242 and 44

Q18 Mathematics

A gold ring is sold for ₹17,500 at a loss of 30%. What is the cost price of the gold ring?

A. ₹25,500

B. ₹25,000 ✓

C. ₹26,000

D. ₹26,500

Q19 Mathematics

Ram bought five bananas for ₹20 and sold them at the rate of three for ₹15. Find his gain percentage.

A. 25% ✓

B. 30%

C. 15%

D. 20%

Q20 Mathematics

If the standard deviation of a set of numbers is 3 and the arithmetic mean of these numbers is 6, what is the coefficient of variation of these numbers?

A. 125

B. 75

C. 50 ✓

D. 100

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Q21 Mathematics

X can do a certain job in 14 days. Y is 40% more efficient than X. How many days will Y alone take to do the same job?

A. 12

B. 3

C. 10 ✓

D. 7

Q22 Mathematics

One-third of the sum of all the prime numbers greater than 5 but less than 18 is the square of:

A. 5

B. 4 ✓

C. 3

D. 6

Q23 Mathematics

If x is any positive even number, then $x^{65} - x$ will always be divisible by:

A. 6 ✓

B. 10

C. 8

D. 12

Q24 Mathematics

Ram covers a certain distance on a toy train. Had the train moved 8 km/h faster, it would have taken 20 min less. If it had moved 4 km/h slower, it would have taken 40 min more. Find the distance.

A. $\frac{20}{3}$ km

B. $\frac{16}{3}$ km ✓

C. $\frac{17}{3}$ km

D. $\frac{19}{3}$ km

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Q25 Mathematics

The area of a rectangle is 396 cm^2, and its length and breadth are in the ratio of 11 : 9. What is its perimeter?

A. 60 cm

B. 50 cm

C. 80 cm ✓

D. 70 cm

Q26 Mathematics

The value of $\cos^2 3° + \cos^2 4° + \cos^2 5° + \ldots\ldots\ldots\ldots\ldots + \cos^2 87°$ is:

A. $\frac{55}{2}$

B. $\frac{65}{2}$

C. $\frac{75}{2}$

D. $\frac{85}{2}$ ✓

Q27 Mathematics

Find the least number that when divided by 9, 8, 10 and 12 leaves a remainder of 3 in each case.

A. 361

B. 365

C. 363 ✓

D. 367

Q28 Mathematics

44% of a number is 798.6. What is 63% of that number?

A. 1143.47

B. 1143.8

C. 1143.46

D. 1143.45 ✓

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Q29 Mathematics

If A can complete a task in 10 days and B can complete it in 4 days, then in how many days will both of them together complete the task?

A. $\frac{20}{7}$ ✓

B. $\frac{19}{7}$

C. $\frac{27}{7}$

D. $\frac{26}{7}$

Q30 Mathematics

The sum of the consecutive angles of a parallelogram is equal to:

A. $360°$

B. $120°$

C. $90°$

D. $180°$ ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

What is the value of k in the following Arithmetic progression?

$15+13+11+9+.....+k = -105$

A. -21

B. 7

C. -25 ✓

D. -5

Q2 Mathematics

The difference between two numbers which are in the ratio 5 : 3 is 50. What is the product of the numbers?

A. 9375 ✓

B. 1035

C. 9975

D. 8575

Q3 Mathematics

Three different traffic signals change lights every 72, 108 and 48 seconds respectively. If the lights change simultaneously at 9:30:00 am, then at what time will they change next simultaneously?

A. 9:37:12 am ✓

B. 9:37:20 am

C. 9:44:24 am

D. 9:36:12 am

Q4 Mathematics

If x% of 10.8 is equal to 32.4, then the value of x is:

A. 100

B. 3

C. 30

D. 300 ✓

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Q5 Mathematics

Ram and Shyam can complete a work in 12 and 18 days respectively. They worked together and received ₹15,000 for doing the work. How much money did they receive individually?

A. Ram = ₹6,000 and Shyam = ₹9,000

B. Ram = ₹9,000 and Shyam = ₹6,000 ✓

C. Ram = ₹10,000 and Shyam = ₹5,000

D. Ram = ₹7,000 and Shyam = ₹8,000

Q6 Mathematics

What is the ratio of the surface areas of two spheres, if their volumes are in the ratio 8 : 27?

A. 2 : 3

B. 4 : 9 ✓

C. 8 : 27

D. 4 : 3

Q7 Mathematics

If mean of the following distribution is 26, then what is the value of k?

Class	0-10	10-20	20-30	30-40	40-50
Frequency	8	10	k	6	12

A. 8

B. 1

C. 4 ✓

D. 10

Q8 Mathematics

$\frac{3}{5}$ of a number is 10 more than $\frac{1}{2}$ of the second number. If 8 is subtracted from $\frac{3}{7}$ of the first number, then it becomes 4 less than $\frac{1}{2}$ of the second number. What is the sum of the two numbers?

A. 56

B. 55

C. 54

D. 57 ✓

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Q9 Mathematics

Circles are inscribed and circumscribed to a triangle whose sides are 3 cm, 4 cm and 5 cm. What is the ratio of radius of the in-circle to that of the circumcircle?

A. 3 : 5

B. 1 : 5

C. 2 : 5 ✓

D. 5 : 2

Q10 Mathematics

An article is sold to Mr. X at a profit of 20%. Mr. X sells it to Mr. Y at a profit of 25%. If Mr. Y pays ₹225 for the article, then what was the cost price for the original seller?

A. ₹275

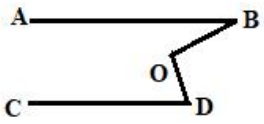
B. ₹200

C. ₹250

D. ₹150 ✓

Q11 Mathematics

In the given figure, AB and CD are parallel lines. O is a point such that angle CDO = 70° and angle DOB = 100°. Find angle ABO.



A. 80°

B. 50°

C. 30° ✓

D. 60°

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Q12 Mathematics

What is the value of $3\frac{21}{23} \div 3\frac{15}{31}$?

A. $\frac{187}{138}$

B. 3

C. $\frac{155}{138}$ ✓

D. 2

Q13 Mathematics

What are the values of x in the following equation?

$3^{2x+1} - 3^x = 3^{x+3} - 3^2$

A. $3, -1$

B. $4, -1$

C. $2, -1$ ✓

D. $4, -2$

Q14 Mathematics

If $1.5X = 0.05Y$, then the value of $\frac{Y-X}{Y+X}$ is closest to:

A. 0.5

B. 0.194

C. 0.935 ✓

D. 0.94

Q15 Mathematics

Four years ago, the ratio of the age of Ram to that of Shyam was 13 : 9. Eight years from now, their ages will be in the ratio 4 : 3. The difference (in years) between their present ages is:

A. 17

B. 16 ✓

C. 19

D. 18

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Q16 Mathematics

391 boys and 323 girls are distributed in groups in such a manner that each group has equal number of members and that the groups have either only boys or only girls. What is the minimum number of groups?

A. 17

B. 42 ✓

C. 23

D. 19

Q17 Mathematics

Simplify $1.\overline{45} + 0.3\overline{12} - 1.11\overline{2}$.

A. $\frac{589}{900}$ ✓

B. $\frac{13}{20}$

C. $\frac{374}{495}$

D. $\frac{163}{300}$

Q18 Mathematics

Find the value of the expression

$24 + 13 - 5\{45 \div (17 - 2)\}$.

A. 22 ✓

B. 21

C. 26

D. 25

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Q19 Mathematics

If triangle ABC is a right angled isosceles triangle, right angled at B, then find the value of

$$\frac{\sin(A-C)+\sin(A+C)-2\sin B}{\cot A+\cot B+\cot C}$$

A. $\frac{1}{2}$

B. $-\frac{1}{2}$ ✓

C. $\frac{3}{2}$

D. 0

Q20 Mathematics

Find the sum for which the difference in the compound interest compounded annually and the simple interest for 3 years at 5% p.a. is ₹244.

A. ₹32,000 ✓

B. ₹31,500

C. ₹35,000

D. ₹32,250

Q21 Mathematics

A fence is constructed along the diagonal of a square field. What is the length of the fence (in km) if the area of the square field is 2 km^2?

A. 2 ✓

B. 5

C. 4

D. 3

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Q22 Mathematics

What is the value of

$9 + 9 \times 9 \div (9 \times 9) \times 9$?

A. 81

B. 738

C. 18 ✓

D. 1458

Q23 Mathematics

From the top and the bottom of 200 m high building, the angles of elevation of the top of a tower are 30 ° and 45 ° respectively. What is the height (in m) of the tower?

A. $100(\sqrt{3}+1)$

B. $300(\sqrt{3}+1)$

C. $100\sqrt{3}(\sqrt{3}+1)$ ✓

D. $100\sqrt{3}(\sqrt{3}-1)$

Q24 Mathematics

Mean of the numbers 2, 4, 5, 8, 2 and 3 is m. The numbers 4, 3, 3, 5, m, 3 and p have mean m+1, median q and mode r. What is the value of (p + q – r)?

A. 13

B. 21

C. 20

D. 14 ✓

Q25 Mathematics

Simplify $\left(\frac{2+\sqrt{3}}{2-\sqrt{3}}\right)^2$.

A. $\frac{16}{3}$

B. $97 - 56\sqrt{3}$

C. $97 + 56\sqrt{3}$ ✓

D. 48

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Q26 Mathematics

The ratio of the marked price to the cost price of an article is 5 : 3. If the selling price of that article is ₹3645 and the shopkeeper gave two successive discounts of 25% and 10% on the marked price, then what is the profit or loss percent during this transaction?

A. loss 15%

B. loss 15.5%

C. profit 10%

D. profit 12.5% ✓

Q27 Mathematics

If the salary of an employee is increased by 15% and subsequently reduced by 15%, then what will be the overall percentage reduction in the salary?

A. 2.50

B. 3.25

C. 2.25 ✓

D. 2.75

Q28 Mathematics

A and B working together can complete a work in 10 days. C alone can complete the same work in 14 days. If A, B and C work together, then how many days will they take to complete three-fifth of the same work?

A. 3

B. $\frac{7}{3}$

C. $\frac{35}{6}$

D. $\frac{7}{2}$ ✓

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Q29 Mathematics

If A is 70% more than B, then B is what percent less than A?

A. $58\frac{14}{17}$

B. $38\frac{4}{17}$

C. $41\frac{3}{17}$ ✓

D. $37\frac{1}{17}$

Q30 Mathematics

Two cars leave city A at 8:30 am and 8:45 am respectively for city B. The cars move at a speed of 45 km/h and 54 km/h respectively. How many kilometers away from city A will the two cars be together?

A. 67.5 ✓

B. 45

C. 40.5

D. 55.2

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A man purchases a machine for ₹2,450 and sells it at a gain of 10%. What is the selling price of the machine?

A. ₹2,569

B. ₹2,596

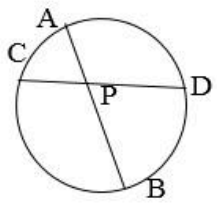
C. ₹2,965

D. ₹2,695 ✓

Q2 Mathematics

In the given circle, chords AB and CD intersect internally at P. If $\overline{CP} = 3$ cm and $\overline{DP} = 8$ cm, and the numerical values of the lengths of $\overline{AP}$ and $\overline{BP}$ are both natural numbers, then which of the following options CANNOT be the length of $\overline{AB}$?

(Diagram is not to scale)



A. 14 cm

B. 20 cm ✓

C. 25 cm

D. 10 cm

Q3 Mathematics

331 × 226 = 74806. What is the value of 3.31 × 0.226?

A. 0.074806

B. 74.806

C. 7.4806

D. 0.74806 ✓

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Q4 Mathematics

Anil is twice as efficient as Balu, and together, they can complete a task in 12 days. In how many days can Anil alone complete the task?

A. 25

B. 18 ✓

C. 15

D. 7

Q5 Mathematics

What is the value of 101^3?

A. 1020301

B. 1030201

C. 1030301 ✓

D. 1020201

Q6 Mathematics

Find the compound interest on ₹5,000 at a rate of 6% per annum for 3 years, compounded annually (correct to the nearest integer).

A. ₹955 ✓

B. ₹618

C. ₹900

D. ₹956

Q7 Mathematics

If θ is an acute angle and $\cot\theta = \frac{12}{35}$, what is the value of $\sec\theta$?

A. $\frac{37}{35}$

B. $\frac{37}{12}$ ✓

C. $\frac{35}{37}$

D. $\frac{35}{12}$

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Q8 Mathematics

What is the LCM of $\frac{6}{25}$, $\frac{4}{45}$ and $\frac{3}{35}$?

A. $\frac{1}{5}$

B. $\frac{12}{5}$ ✓

C. $\frac{210}{12}$

D. $\frac{12}{210}$

Q9 Mathematics

If $4x - 3y = 9$ and $x = 6$, then what is the value of y?

A. 6

B. 4

C. 5 ✓

D. 3

Q10 Mathematics

$243 \div 3 \div 3 \div 3 \div 3$ is equal to:

A. 9

B. 27

C. 243

D. 3 ✓

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Q11 Mathematics

The smallest fraction that each of $\frac{5}{14}, \frac{6}{7}$ and $\frac{10}{21}$ will divide exactly is:

A. $\frac{60}{7}$

B. $\frac{30}{7}$ ✓

C. $\frac{30}{147}$

D. $\frac{50}{67}$

Q12 Mathematics

A sum of money when invested for 7.2 years gives ₹5,768 as the amount on maturity. If the simple rate of interest was 2% per annum more than what it was, the amount on maturity would have been ₹6,272. The original sum invested was:

A. ₹3,500 ✓

B. ₹4,000

C. ₹3,250

D. ₹3,750

Q13 Mathematics

14 men can complete a task in 9 days and 16 women can complete the same task in 7 days. In how many days can 6 men and 8 women complete the task?

A. 7.2

B. 8.4 ✓

C. 9

D. 9.6

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Q14 Mathematics

If $(1-\cos P)(1+\cos P)=\frac{3}{4}$ and P is an acute angle , then find the value of secP.

A. $\frac{\sqrt{7}}{2}$

B. $\frac{1}{2}$

C. 2 ✓

D. $\frac{\sqrt{2}}{7}$

Q15 Mathematics

The value of a desktop computer depreciates at the rate of 20% every year. It was purchased 3 years ago. If its present value is ₹12,288, what was its purchase price 3 years ago?

A. ₹24,000 ✓

B. ₹24,750

C. ₹23,750

D. ₹24,250

Q16 Mathematics

If the average of 6 positive integers is 55 and the difference between the largest and the smallest of these 6 numbers is 24, what is the maximum value possible for the largest of these 6 integers?

A. 81

B. 75 ✓

C. 78

D. 72

Q17 Mathematics

What is the sum of the cubes of the first four natural numbers?

A. 1000

B. 84

C. 96

D. 100 ✓

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Q18 Mathematics

What is the HCF of 81, 91, 101 and 111?

A. 3

B. 7

C. 1 ✓

D. 13

Q19 Mathematics

A person incurs a 15% loss by selling an article for ₹170. At what price should the article be sold to earn a 10% profit?

A. ₹200

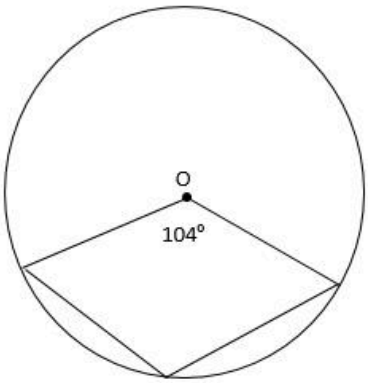
B. ₹420

C. ₹220 ✓

D. ₹120

Q20 Mathematics

In the given circle with centre O, the obtuse angle at the centre measures 104°. In the quadrilateral drawn inside the circle, what is the measure of the angle opposite to ∠O? [Figure is not drawn to scale.]



A. 124°

B. 128° ✓

C. 132°

D. 152°

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Q21 Mathematics

A train travelling at a speed of 69 km/h passes an electric pole in 8 seconds and a platform in 32 seconds. What is the length of the platform?

A. 460 m ✓

B. 540 m

C. 480 m

D. 500 m

Q22 Mathematics

How much does one have to subtract from $\frac{8}{5}$ to obtain $\frac{5}{8}$?

A. $\frac{39}{64}$

B. $\frac{39}{40}$ ✓

C. $\frac{31}{40}$

D. $\frac{25}{64}$

Q23 Mathematics

If $\frac{3}{5}$ of a bottle is filled, what is the ratio of the filled part to the empty part of the bottle?

A. 3 : 2 ✓

B. 5 : 3

C. 2 : 3

D. 3 : 5

Q24 Mathematics

How many factors does the number 12288 have?

A. 22

B. 24

C. 28

D. 26 ✓

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Q25 Mathematics

$\frac{6}{11}$ of the people present in a hall are sitting in $\frac{9}{14}$ of the chairs available, and the rest are standing. If there are 30 empty chairs, how many people in the hall are standing?

A. 40

B. 30

C. 45 ✓

D. 35

Q26 Mathematics

Radha and Vatsal invested ₹36,000 and ₹42,000, respectively, in a business. Radha, being an active partner, got ₹637.50 extra every month for running the business. In 3 years, if Radha received a total of ₹31,500, then what was the profit earned by Vatsal during this period?

A. ₹9,975 ✓

B. ₹36,750

C. ₹8,550

D. ₹10,795

Q27 Mathematics

The ratio of two numbers is 3 : 7 and their HCF is 3. Their LCM is:

A. 3

B. 36

C. 7

D. 63 ✓

Q28 Mathematics

The hypotenuse of a right isosceles triangle is $34\sqrt{2}$ cm. Find the area of the triangle.

A. 616 cm^2

B. 1156 cm^2

C. 867 cm^2

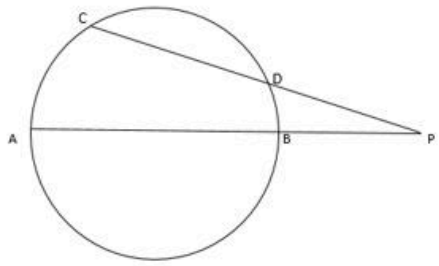
D. 578 cm^2 ✓

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Q29 Mathematics

In the given circle, diameter AB is extended to meet chord CD extended at P. If the lengths of the line segments AP, CD and DP are 18 cm, 3 cm and 9 cm, respectively, what is the length of the radius of the circle?



A. 6 cm ✓

B. 12 cm

C. 3 cm

D. 9 cm

Q30 Mathematics

The radius of a sphere, 'r', is equal to the radius of the base of a right circular cylinder. The total volume of these two solids $= \frac{7}{3}\pi r^3$. If 'h' is the height of the cylinder, find $\frac{h}{r}$.

A. 2

B. 3

C. 1 ✓

D. 1.5

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Mathematics 30 Questions • Answer Key

Q1 Mathematics HINDI - no English version saved

यदि एक घन का आयतन, 54 cm, 18 cm और 6 cm की विमाओं वाले एक घनाभ के आयतन के बराबर है, तो घन की भुजा की लंबाई ज्ञात कीजिए।

A. 24 cm

B. 18 cm ✓

C. 16 cm

D. 12 cm

Q2 Mathematics HINDI - no English version saved

एक दूधवाला शुद्ध दूध में 10% पानी मिलाता है, लेकिन वह इससे संतुष्ट नहीं होता है। इसलिए, वह फिर से पिछले मिश्रण में 10% और पानी मिलाता है। यदि वह इसे क्रय मूल्य पर बेचता है, तो लाभ प्रतिशत ज्ञात कीजिए।

A. 21% ✓

B. 20%

C. 12.1%

D. 11.11%

Q3 Mathematics HINDI - no English version saved

यदि $2(\cos\theta + \sec\theta) = 5$ है, तो $\sec^2\theta + \cos^2\theta$ का मान ज्ञात कीजिए।

A. $\frac{25}{2}$

B. $\frac{4}{17}$

C. $\frac{5}{4}$

D. $\frac{17}{4}$ ✓

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Q4 Mathematics HINDI - no English version saved

राजा ने ₹4400 की पूंजी के साथ सब्जी का व्यवसाय शुरू किया। कुछ महीनों के बाद, रंगा ₹2400 की पूंजी के साथ इस व्यवसाय में जुड़ गया। ₹1200 के कुल वार्षिक लाभ में से, राजा का हिस्सा ₹800 है। रंगा एक साझेदार के तौर पर इस व्यवसाय में कब शामिल हुआ?

A. वर्ष समाप्त होने के 2 माह पहले

B. राजा द्वारा व्यवसाय शुरू करने के 2 माह बाद

C. राजा द्वारा व्यवसाय शुरू करने के 1 माह बाद ✓

D. वर्ष समाप्त होने के 1 माह पहले

Q5 Mathematics HINDI - no English version saved

$sin^2 5° + sin^2 10° + sin^2 80° + sin^2 85°$ का मान ज्ञात कीजिए।

A. 3

B. 2 ✓

C. 1

D. 0

Q6 Mathematics HINDI - no English version saved

तीन अंकों की छोटी से छोटी अभाज्य संख्या ज्ञात कीजिए।

A. 101 ✓

B. 109

C. 107

D. 103

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Q7 Mathematics HINDI - no English version saved

$-\frac{3}{2}, \frac{3}{2}, \frac{11}{4}, \frac{5}{2}$ में से सबसे बड़ी संख्या ज्ञात कीजिए।

A. $\frac{11}{4}$ ✓

B. $-\frac{3}{2}$

C. $\frac{5}{2}$

D. $\frac{3}{2}$

Q8 Mathematics HINDI - no English version saved

निम्नलिखित को हल कीजिए:

$79 + [37 - \{45 - (1 - 36 \div 6 \times 8)\}] = ?$

A. 24 ✓

B. 41

C. 33

D. 59

Q9 Mathematics HINDI - no English version saved

HDFC, HUDCO को साधारण ब्याज की 10% वार्षिक दर पर ₹1 मिलियन की राशि तीन वर्ष के लिए उधार देता है और HUDCO वही राशि सहारा स्टेट हाउसिंग कॉर्पोरेशन को चक्रवृद्धि ब्याज 10% वार्षिक की दर पर तीन वर्ष के लिए उधार दे देता है। इस संव्यवहार में HUDCO को होने वाला लाभ ज्ञात कीजिए?

A. ₹31,000 ✓

B. ₹32,100

C. ₹1,33,100

D. ₹33,100

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Q10 Mathematics HINDI - no English version saved

यदि दो संख्याओं का महत्तम समापवर्तक (HCF) 18 है और उनका लघुत्तम समापवर्त्य (LCM) 378 है, तो निम्न में से ऐसी संख्याओं का युग्म ज्ञात कीजिए।

A. 54, 126 ✓

B. 18, 252

C. 27, 252

D. 54, 252

Q11 Mathematics HINDI - no English version saved

किसी मिश्रण में रेत और सीमेंट का अनुपात आरंभ में 9 : 2 था। मिश्रण में अलग से 20 किलो रेत और 10 किलो सीमेंट मिलाने के बाद, रेत और सीमेंट का अनुपात 4 : 1 हो गया। मिश्रण में सीमेंट की आरंभिक मात्रा कितनी थी?

A. 50 kg

B. 40 kg ✓

C. 30 kg

D. 20 kg

Q12 Mathematics HINDI - no English version saved

बिंदु (2,3) से वृत्त $x^2 + y^2 = 4$ पर खींची गई स्पर्शरेखा की लंबाई ज्ञात कीजिए।

A. 3 ✓

B. 2

C. 1

D. 4

Q13 Mathematics HINDI - no English version saved

जब 43 को x से विभाजित किया जाता है, तो x-5 शेष बचता है। यदि x एक प्राकृत संख्या है, तो x के कितने मान होंगे?

A. 6 ✓

B. 3

C. 4

D. 5

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Q14 Mathematics HINDI - no English version saved

$\sqrt[5]{\frac{32}{243}}$ का मान इनमें से किसके बराबर है?

A. $\frac{3}{2}$

B. $\frac{2}{3}$ ✓

C. $\frac{5}{2}$

D. $\frac{5}{3}$

Q15 Mathematics HINDI - no English version saved

आप 48% को भिन्न के रूप में किस प्रकार व्यक्त करेंगे?

A. $\frac{1}{25}$

B. $\frac{10}{25}$

C. $\frac{12}{25}$ ✓

D. $\frac{11}{25}$

Q16 Mathematics HINDI - no English version saved

एक व्यक्ति अपने घर से चलना शुरू करता है और 15 km/h की चाल से एक निश्चित दूरी तय करता है और 10 km/h की चाल से आरंभ बिंदु पर वापस लौटता है। पूरी यात्रा के दौरान उसकी औसत चाल ज्ञात कीजिए।

A. 11 km/hr

B. $12\frac{1}{2}$ km/hr

C. 13 km/hr

D. 12 km/hr ✓

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Q17 Mathematics HINDI - no English version saved

यदि x = 3cosAcosB, y = 3cosAsinB और z = 3sinA हो, तो $x^2 + y^2 + z^2$ का मान ज्ञात कीजिए।

A. 12

B. 3

C. 6

D. 9 ✓

Q18 Mathematics HINDI - no English version saved

एक आदमी 6 km/h की चाल से 30 km की दूरी तय करता है और शेष 40 km की यात्रा 5 घंटे में पूरी करता है। पूरी यात्रा के दौरान उसकी औसत चाल ज्ञात कीजिए।

A. $6\frac{4}{11}$ km/hr

B. 5 km/hr

C. 7 km/hr ✓

D. 8 km/hr

Q19 Mathematics HINDI - no English version saved

$(-3) \times (-7) = (-7) \times (-3)$ _____ गुण है।

A. क्रम विनिमेय (commutative) ✓

B. बंटन (distributive)

C. साहचर्य (associative)

D. संवृत (closure)

Q20 Mathematics HINDI - no English version saved

यदि एक समकोण समद्विबाहु त्रिभुज की एक भुजा 2 m है, तो इसके कर्ण का माप ज्ञात कीजिए।

A. $8\sqrt{2}\,m$

B. $2\sqrt{2}\,m$ ✓

C. $2\sqrt{4}\,m$

D. $2\sqrt{8}\,m$

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Q21 Mathematics HINDI - no English version saved

यदि $a + b + c = 5$ और $a^2 + b^2 + c^2 = 29$ है, तो ab + bc + ca का मान ज्ञात कीजिए।

A. -1

B. -2 ✓

C. 1

D. 2

Q22 Mathematics HINDI - no English version saved

एक समांतर चतुर्भुज PQRS में $P = (-1,-1), Q = (8,0)$ और $R = (7,5)$ है। 'S' के निर्देशांक ज्ञात कीजिए।

A. (-1, 4)

B. $\left(-2,\frac{7}{2}\right)$

C. (-2, 4) ✓

D. $\left(-\frac{3}{2},4\right)$

Q23 Mathematics HINDI - no English version saved

यदि $tan\theta = \frac{p}{q}$ है, तो $\frac{psin\,\theta - q\,cos\,\theta}{psin\,\theta + q\,cos\,\theta}$ का मान ज्ञात कीजिए।

A. $\frac{P^2 - q^2}{P^2 + q^2}$ ✓

B. $\frac{q^2 - p^2}{P^2 + q^2}$

C. $\frac{2p}{P^2 + q^2}$

D. $\frac{2pq}{P^2 + q^2}$

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Q24 Mathematics HINDI - no English version saved

12 संतरों का क्रय मूल्य, 9 संतरों के विक्रय मूल्य के बराबर है और 10 संतरों पर प्रदान की गई छूट 5 संतरों पर प्राप्त लाभ के बराबर है। छूट का प्रतिशत (दशमलव के बाद 2 अंकों तक) ज्ञात कीजिए।

A. 16.67

B. 33.33

C. 11.11 ✓

D. 44.44

Q25 Mathematics HINDI - no English version saved

यदि $\frac{c}{d} = 1 \div \frac{3}{4}$ हो, तो $\frac{c+d}{c-d}$ का मान ज्ञात कीजिए।

A. $\frac{4}{3}$

B. $\frac{7}{4}$

C. 7 ✓

D. -7

Q26 Mathematics HINDI - no English version saved

$-\frac{40}{56}$ को ऐसी परिमेय संख्या के रूप में व्यक्त कीजिए, जिसका अंश -5 है।

A. $-\frac{5}{7}$ ✓

B. $-\frac{5}{18}$

C. $-\frac{5}{8}$

D. $-\frac{5}{6}$

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Q27 Mathematics HINDI - no English version saved

A और B मिलकर एक कार्य को 6 दिनों में पूरा कर सकते हैं और A अकेले उसी कार्य को 9 दिनों में पूरा कर सकता है। B अकेले उसी कार्य को पूरा करने में कितने दिन लेगा?

A. 18 ✓

B. 16

C. 12

D. 20

Q28 Mathematics HINDI - no English version saved

निम्नलिखित में से किस युग्म की संख्याएं सहअभाज्य हैं?

A. 21, 56

B. 36, 20

C. 28, 81 ✓

D. 12, 27

Q29 Mathematics HINDI - no English version saved

इनमें से किन दो भिन्नों को $\frac{5}{7}$ और $\frac{3}{4}$ के बीच रखा जा सकता है?

A. $\frac{8}{11}, \frac{11}{15}$ ✓

B. $\frac{7}{9}, \frac{8}{9}$

C. $\frac{1}{2}, \frac{2}{5}$

D. $\frac{2}{3}, \frac{5}{6}$

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Q30 Mathematics HINDI - no English version saved

A और B ने ₹7500 और ₹8000 के पूंजी निवेशों के साथ एक व्यवसाय शुरू किया। यदि वे क्रमशः 8 माह और 10 माह बाद व्यवसाय छोड़ देते हैं, तो उनको प्राप्त होने वाले लाभ का अनुपात ज्ञात कीजिए?

A. 3 : 4 ✓

B. 3 : 5

C. 3 : 7

D. 3 : 8

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

What is the compound interest on ₹8,000 for $1\frac{1}{2}$ years at 21% per annum compounded annually?

A. ₹2,648 ✓

B. ₹2,628

C. ₹2,580

D. ₹2,520

Q2 Mathematics

The value of $\sqrt{0.0121} + \sqrt[3]{0.008}$ is:

A. 0.21

B. 0.11

C. 0.2

D. 0.31 ✓

Q3 Mathematics

What is the value of $20 - [16 \div \{25 \div 5 - 2 \times (12 - 20 \div 2)\}]$?

A. 1

B. 2

C. 4 ✓

D. 3

Q4 Mathematics

If $sec\theta + tan\theta = 2 + \sqrt{3}$, then $cos\theta = ?$

A. $\frac{1}{2}$ ✓

B. 2

C. $\frac{\sqrt{3}}{2}$

D. $\sqrt{3}$

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Q5 Mathematics

If the mean of observations $x_1, x_2, x_3, \ldots, x_n$ is $\bar{x}$, then:

A. $\sum_{i=1}^{n}(x_i - \bar{x})^2 = 0$

B. $\sum_{i=1}^{n}(x_i + \bar{x}) = 0$

C. $\sum_{i=1}^{n}(x_i - \bar{x}) = 0$ ✓

D. $\sum_{i=1}^{n}(\bar{x} - x_i) = 0$

Q6 Mathematics

What is the sum of $1 + 2 + 3 + \cdots + 49 + 50$?

A. 2550

B. 2525

C. 1275 ✓

D. 5050

Q7 Mathematics

Mean of the given observations $x + 1, x + 3, x + 5, x + 7$ and $x + 9$ is 6, then value of x is:

A. 5

B. 6

C. 1 ✓

D. 3

Q8 Mathematics

The length, width and height of a cuboid are 4 m, 3 m and 12 m respectively. What will be the length of the longest stick that can be put inside the cuboid?

A. 13 m ✓

B. 4 m

C. 12 m

D. 3 m

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Q9 Mathematics

Ram and Shyam can complete a task in 12 and 15 days separately. Both together start doing the task. Shyam leaves the task after 5 days. In how many days will Ram complete the remaining work?

A. 3 ✓

B. 12

C. 15

D. 5

Q10 Mathematics

The radius and height of a solid cylinder are 6 m and 5 m. How many solid spheres of radius 3 m can be formed from that cylinder?

A. 10

B. 8

C. 4

D. 5 ✓

Q11 Mathematics

Two trains are moving in opposite directions with the speeds of 60 km/h and 25 m/s respectively. What will be the speed of the second train with respect to a man sitting in the first train?

A. 150 km/h ✓

B. 30 km/h

C. 85 km/h

D. 35 km/h

Q12 Mathematics

What is $\frac{2}{5}$ as a percentage ?

A. 40% ✓

B. 20%

C. 75%

D. 50%

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Q13 Mathematics

If $x + y = -2$, then $x^3 + y^3 - 6xy = ?$

A. 8

B. 4

C. –4

D. –8 ✓

Q14 Mathematics

If $x^2 : 18 :: 12 : x$ then $x = ?$

A. 6 ✓

B. 3

C. 5

D. 4

Q15 Mathematics

The equation of a line which passes through a point (1, 5) and perpendicular to the line $x - y = 5$, is:

A. $x - y = 6$

B. $x - y = 4$

C. $x + y = 6$ ✓

D. $y - x = 4$

Q16 Mathematics

A train of length 250 m crosses a man in 10 s. What is the speed of train?

A. 75 km/h

B. 90 km/h ✓

C. 60 km/h

D. 45 km/h

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Q17 Mathematics

What is the angle between two lines $x + y = 2$ and $x - y = 7$?

A. $45°$

B. $90°$ ✓

C. $60°$

D. $30°$

Q18 Mathematics

What is the value of $(2+\sqrt{5})^4 - (2-\sqrt{5})^4$?

A. $12\sqrt{5}$

B. $144\sqrt{5}$ ✓

C. $96\sqrt{5}$

D. $120\sqrt{5}$

Q19 Mathematics

Radha sold a watch at the loss of 10%. If she had sold that watch for ₹120 more, she would have gained 10%. The cost price of the watch is:

A. ₹500

B. ₹600 ✓

C. ₹700

D. ₹800

Q20 Mathematics

The ratio of the HCF to the LCM of numbers 10, 25 and 35 is:

A. 1 : 70 ✓

B. 70 : 1

C. 1 : 35

D. 35 : 1

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Q21 Mathematics

The cube root of 250 lies between:

A. 7 and 8

B. 6 and 7 ✓

C. 4 and 5

D. 5 and 6

Q22 Mathematics

What is the sum of fractional numbers $1\frac{5}{7}$ and $1\frac{2}{5}$?

A. $3\frac{4}{25}$

B. $3\frac{4}{49}$

C. $3\frac{5}{35}$

D. $3\frac{4}{35}$ ✓

Q23 Mathematics

A population of tumor cells has a constant growth at the rate of 5% per second. If the present population is 400 cells, what will be its population after two seconds?

A. 441 cells ✓

B. 410 cells

C. 440 cells

D. 405 cells

Q24 Mathematics

If $a + b = ab$ then $a : b = ?$

A. $1 : b - 1$ ✓

B. $1 : b$

C. $b : 1$

D. $b - 1 : 1$

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Q25 Mathematics

If $9 \times \log(x) = \log(9) + \log(27) + \log(81)$, then $x = ?$

A. 2

B. 1

C. 3 ✓

D. 4

Q26 Mathematics

What is the value of $\frac{(0.03)\times(0.05)\times(1.5)}{0.0225}$?

A. 0.15

B. 0.1 ✓

C. 0.05

D. 1.5

Q27 Mathematics

What is the value of $\tan(15°)$?

A. $\sqrt{3} - 2$

B. $2 + \sqrt{3}$

C. $2 - \sqrt{3}$ ✓

D. $-\sqrt{3} - 2$

Q28 Mathematics

Ishan makes profit of 10% by selling a dress. If he had sold it for ₹150 less, Ishan would have been at the loss of 5%. What is the cost price of the dress?

A. ₹1000 ✓

B. ₹1250

C. ₹500

D. ₹750

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Q29 Mathematics

If $x + y = 40$ and $x - y = 20$, then the HCF of x and y is:

A. 10 ✓

B. 40

C. 30

D. 20

Q30 Mathematics

If $\left(\frac{2}{3}\right)^{x+1} = \left(\frac{3}{2}\right)^{x-1}$ then $x = ?$

A. 0 ✓

B. -1

C. 3

D. 2

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Mathematics 30 Questions • Answer Key

Q1 Mathematics HINDI - no English version saved

दिया गया है कि भाज्य 2200 है, शेषफल 13 है और भाजक, भागफल के एक तिहाई के बराबर है, तो भाजक ज्ञात कीजिए।

A. 27 ✓

B. 25

C. 24

D. 20

Q2 Mathematics HINDI - no English version saved

एक निश्चित संख्या में कुछ पुरुष किसी कार्य को 50 दिनों में पूरा कर सकते हैं। यदि 5 पुरुष अधिक होते, तो इस कार्य को पूरा होने में 10 दिन कम लगते। पुरुषों की कुल संख्या ज्ञात कीजिए।

A. 30

B. 10

C. 40

D. 20 ✓

Q3 Mathematics HINDI - no English version saved

निम्नलिखित को हल कीजिए।

$\frac{1}{2}[\frac{1}{3} - (\frac{1}{2} - \frac{1}{4}) + \frac{1}{2} - \frac{1}{4}] = ?$

A. $\frac{1}{2}$

B. 0

C. $\frac{1}{4}$

D. $\frac{1}{6}$ ✓

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Q4 Mathematics HINDI - no English version saved

1480 के 16% के 19% का मान इनमें से किसके बराबर है?

A. 1480 के 8% के 38% ✓

B. 1480 के 6% के 48%

C. 1480 के 26% के 9%

D. 1480 के 1% के 35%

Q5 Mathematics HINDI - no English version saved

चार अकों की वह बड़ी से बड़ी संख्या ज्ञात कीजिए जिसे 7, 9 और 11 से विभाजित करने पर प्रत्येक स्थिति में 5 शेषफल प्राप्त होता है।

A. 9707 ✓

B. 9467

C. 9236

D. 9763

Q6 Mathematics HINDI - no English version saved

3 क्रमागत प्राकृत संख्याओं का औसत (जो आरोही क्रम में हैं) K है। यदि संख्याओं के पहले समूह के तुरंत बाद की दो और क्रमागत संख्याओं को इसमें शामिल कर लिया जाए, तो प्राप्त होने वाला नया औसत ज्ञात कीजिए।

A. $\frac{2K+1}{2}$

B. K + 1 ✓

C. K + 2

D. 2K - 1

Q7 Mathematics HINDI - no English version saved

यदि छूट और प्रतिशत लाभ दोनों ही 20% हैं, तो अंकित मूल्य, क्रय मूल्य से कितने प्रतिशत अधिक है?

A. 50% ✓

B. 40%

C. 70%

D. 60%

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Q8 Mathematics HINDI - no English version saved

एक त्रिभुज के दो कोणों का योग, इसके तीसरे कोण के बराबर है। तीसरे कोण का माप कितना है?

A. 50°

B. 60°

C. 80°

D. 90° ✓

Q9 Mathematics HINDI - no English version saved

यदि $2a + \frac{1}{2a} = 6$ है, तो $64a^6 + \frac{1}{64a^6}$ का मान कितना होगा?

A. 42592

B. 46656

C. 39202 ✓

D. 36752

Q10 Mathematics HINDI - no English version saved

एक रेलगाड़ी 50 m लंबे स्टेशन प्लेटफॉर्म को 15 s में पार करती है और 20 m लंबे दूसरे स्टेशन प्लेटफॉर्म को 10 s में पार करती है। रेलगाड़ी की लंबाई ज्ञात कीजिए।

A. 40 m ✓

B. 50 m

C. 60 m

D. 35 m

Q11 Mathematics HINDI - no English version saved

a, 11, 23 और 17 का औसत 15 है और a, b, 12 और 25 का औसत 16 है। $\frac{a}{b}$ का मान ज्ञात कीजिए।

A. $\frac{3}{4}$

B. $\frac{1}{3}$

C. $\frac{1}{2}$ ✓

D. $\frac{2}{3}$

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Q12 Mathematics HINDI - no English version saved

$\frac{-5}{7}$ में इनमें से कौन सी संख्या जोड़ी जानी चाहिए, ताकि प्राप्त परिणाम $\frac{-2}{3}$ हो?

A. $\frac{-7}{21}$

B. $\frac{10}{21}$

C. $\frac{1}{21}$ ✓

D. $\frac{7}{21}$

Q13 Mathematics HINDI - no English version saved

यदि ${}^{10}p_r = 5040$ है, तो r का मान ज्ञात कीजिए।

A. 4 ✓

B. 6

C. 3

D. 5

Q14 Mathematics HINDI - no English version saved

60 km/h की चाल से चलने वाली एक रेलगाड़ी एक खंभे को 33 s में पार करती है। रेलगाड़ी की लंबाई ज्ञात कीजिए।

A. 550 m ✓

B. 490 m

C. 400 m

D. 495 m

Q15 Mathematics HINDI - no English version saved

निम्नलिखित को हल कीजिए।

$0.25(0.25 \times 0.25) \div 0.625 = ?$

A. 0.025 ✓

B. 0.25

C. 0.0025

D. 2.5

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Q16 Mathematics HINDI - no English version saved

12% वार्षिक ब्याज की दर से ₹1,00,000 की राशि पर 18 माह के चक्रवृद्धि ब्याज और साधारण ब्याज का अंतर ज्ञात कीजिए, जबकि ब्याज को अर्द्धवार्षिक आधार पर चक्रवृद्धि किया जाता है?

A. ₹11,016

B. ₹1,101.6 ✓

C. ₹1.11016

D. ₹110.16

Q17 Mathematics HINDI - no English version saved

प्रथम 100 प्राकृत संख्याओं का महत्तम समापवर्तक (HCF) ज्ञात कीजिए।

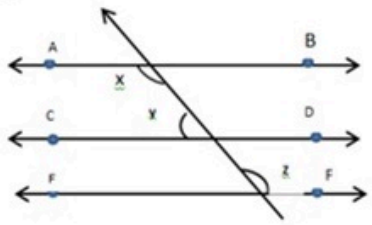
A. 100

B. 2

C. 10

D. 1 ✓

Q18 Mathematics HINDI - no English version saved



दी गई आकृति में, एक तिर्यक रेखा, तीन समानांतर रेखाओं को प्रतिच्छेदित करती है। चिह्नित कोणों में से, दो बड़े कोणों का माप समान है। बड़े कोण और छोटे कोण के माप का अनुपात 7 : 3 है। बड़े कोण का माप ज्ञात कीजिए।

A. 110°

B. 90°

C. 18°

D. 126° ✓

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Q19 Mathematics HINDI - no English version saved

किसी वस्तु की बिक्री के दौरान 12.5% लाभ और 10.5% हानि के बीच का अंतर ₹161 है। यदि अपेक्षित लाभ 19% है, तो वस्तु का विक्रय मूल्य कितना होना चाहिए?

A. ₹833 ✓

B. ₹798

C. ₹817

D. ₹850

Q20 Mathematics HINDI - no English version saved

$(\frac{3}{4} - \frac{2}{3})$ में से इनमें से कौन सी संख्या घटाई जानी चाहिए, ताकि परिणाम $\frac{-1}{6}$ प्राप्त हो?

A. $\frac{1}{3}$

B. $1\frac{1}{4}$

C. $\frac{2}{4}$

D. $\frac{1}{4}$ ✓

Q21 Mathematics HINDI - no English version saved

$\tan 75° - \cot 75°$ का मान इनमें से किसके बराबर है?

A. $1 + 2\sqrt{3}$

B. $2 + \sqrt{3}$

C. $2 - \sqrt{3}$

D. $2\sqrt{3}$ ✓

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Q22 Mathematics HINDI - no English version saved

₹1,800 की राशि पर 10% वार्षिक ब्याज की दर से 2 वर्ष का चक्रवृद्धि ब्याज (दशमलव के बाद दो अंकों तक) ज्ञात कीजिए, यदि ब्याज की गणना अर्धवार्षिक चक्रवृद्धि आधार पर की जाती है?

A. ₹1,986.86

B. ₹86.86

C. ₹286.86

D. ₹387.91 ✓

Q23 Mathematics HINDI - no English version saved

चार अंकों की ऐसी कितनी संख्याएं हो सकती हैं, जो $5, 12$ और 18 से पूर्णतः विभाज्य हों?

A. 49

B. 47

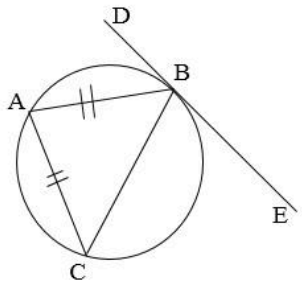
C. 48

D. 50 ✓

Q24 Mathematics HINDI - no English version saved

दी गयी आकृति में, DE एक बिंदु B पर वृत्त की स्पर्श रेखा है। ΔABC इस प्रकार बनाया गया है कि A और C, दिए गए वृत्त की परिधि पर स्थित बिंदु हैं, जहाँ $\overline{AB} = \overline{AC}$ है। यदि $\angle ABD = 65°$ है, तो $\angle BAC$ का माप ज्ञात कीजिए।

(आकृति मापनीय नहीं है)



A. $60°$

B. $40°$

C. $80°$

D. $50°$ ✓

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Q25 Mathematics HINDI - no English version saved

दो संख्याओं का महत्तम समापवर्तक (GCD) 9 है और उनका लघुत्तम समापवर्त्य(LCM) 270 है। उनमें से एक संख्या यदि 27 है, तो दूसरी संख्या ज्ञात कीजिए।

A. 90 ✓

B. 900

C. 10

D. 54

Q26 Mathematics HINDI - no English version saved

एक आदमी एक वस्तु ₹950 में खरीदता है और इसे ₹1000 में बेच देता है। उसका प्रतिशत लाभ ज्ञात कीजिए।

A. $5\frac{5}{19}\%$ ✓

B. $5\frac{5}{9}\%$

C. $5\frac{1}{9}\%$

D. 5%

Q27 Mathematics HINDI - no English version saved

निम्न तालिका में बारंबारता-बंटन दिया गया है जिसका समांतर माध्य 33 है। बंटन से k के संभावित मानों का गुणनफल ज्ञात कीजिए।

मान (x)	बारंबारता (f)
29	4
30	3
30 + k	3k
34	2
62	1

A. 5

B. 2 ✓

C. 3

D. 4

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Q28 Mathematics HINDI - no English version saved

वह छोटी से छोटी धनात्मक पूर्णांक संख्या ज्ञात कीजिए, जिसे 2750 में से घटाए जाने पर प्राप्त अंतर एक पूर्ण घन हो?

A. 15

B. 14

C. 9

D. 6 ✓

Q29 Mathematics HINDI - no English version saved

मोहन एक दिन ₹60 कमाता है और दूसरे दिन ₹50 खर्च कर देता है। वह तीसरे दिन फिर से ₹60 कमाता है और चौथे दिन ₹50 खर्च कर देता है, और बाकि दिन भी यही क्रम चलता रहता है। किस दिन खर्च करने से पहले उसके पास ₹200 होंगे?

A. $10^{\text{वें}}$

B. $14^{\text{वें}}$

C. $28^{\text{वें}}$

D. $29^{\text{वें}}$ ✓

Q30 Mathematics HINDI - no English version saved

एक समचतुर्भुज का एक विकर्ण, दूसरे से दोगुना है। यदि समचतुर्भुज का क्षेत्रफल K cm^2 है, तो इसकी भुजा की लंबाई ज्ञात कीजिए।

A. $\sqrt{\frac{5k}{4}}$ cm ✓

B. $\frac{\sqrt{5k}}{4}$ cm

C. $\frac{5\sqrt{k}}{4}$ cm

D. 5k cm

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

Which of the following fraction falls between $\frac{3}{4}$ and $\frac{6}{7}$?

A. $\frac{9}{11}$ ✓

B. $\frac{9}{10}$

C. $\frac{5}{9}$

D. $\frac{11}{9}$

Q2 Mathematics

A train is moving at a speed of 180 km/h. Its speed expressed in m/s is:

A. 40 m/s

B. 5 m/s

C. 30 m/s

D. 50 m/s ✓

Q3 Mathematics

The remainder, when $11^{41} + 3$ is divided by 10, is:

A. 5

B. 3

C. 6

D. 4 ✓

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Q4 Mathematics

The ascending order of the fractions $\frac{2}{3}, \frac{1}{2}$ and $\frac{1}{6}$ is:

A. $\frac{2}{3}, \frac{1}{2}, \frac{1}{6}$

B. $\frac{1}{6}, \frac{2}{3}, \frac{1}{2}$

C. $\frac{2}{3}, \frac{1}{6}, \frac{1}{2}$

D. $\frac{1}{6}, \frac{1}{2}, \frac{2}{3}$ ✓

Q5 Mathematics

Sita, Gita and Rita invested ₹20,000, ₹50,000 and ₹40,000, respectively, in a business. The net profit for the year was ₹12,100, which was divided in proportion to their investments. Find the share of profit earned by Rita.

A. ₹4,300

B. ₹4,200

C. ₹4,400 ✓

D. ₹4,100

Q6 Mathematics

In ΔABC, if $\angle A = 3\ \angle B$ and $\angle C = 2\ \angle B$ then, what are values of $\angle A, \angle B$ and $\angle C$?

A. 30°, 90° and 60°

B. 90°, 30° and 60° ✓

C. 60°, 30° and 90°

D. 90°, 60° and 30°

Q7 Mathematics

The number of pairs of twin primes between 1 and 100 are:

A. 7

B. 9

C. 10

D. 8 ✓

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Q8 Mathematics

The angle of a sector is 30°. If its radius is 42 cm, then the length of the arc of the sector is:

A. 22 cm ✓

B. 32 cm

C. 20 cm

D. 22 m

Q9 Mathematics

The cube root of 150 will lie between:

A. 6 and 7

B. 4 and 5

C. 5 and 6 ✓

D. 7 and 8

Q10 Mathematics

₹21,150 A, B, और C के बीच बांटे जाते हैं। A का हिस्सा, B के हिस्से का $\frac{4}{5}$ है, और B का हिस्सा, C के हिस्से का $\frac{3}{4}$ है। अपनी संबंधित धनराशियां प्राप्त करने के बाद, C अपने हिस्से की कुछ धनराशि A को देती है, इस अंतरण के बाद, A और C की धनराशि का अनुपात 7 : 9 हो जाता है। C ने अपने मूल हिस्से की कितनी धनराशि A को दी?

A. $\frac{1}{10}$ ✓

B. $\frac{1}{12}$

C. $\frac{1}{5}$

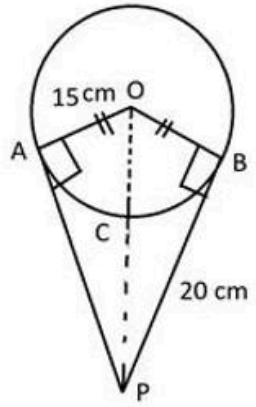
D. $\frac{1}{8}$

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Q11 Mathematics

In the given figure, if PB = 20 cm and OA = 15 cm, then find the shortest distance between the circle and P.



A. 20 cm

B. 10 cm ✓

C. 15 cm

D. 25 cm

Q12 Mathematics

यदि किसी भिन्न का अंश उसके हर से निश्चित रूप से कम है, तो भिन्न _____ है।

A. अनुचित भिन्न (improper fraction)

B. पूर्णांक (Integer)

C. दशमलव भिन्न (decimal fraction)

D. उचित भिन्न (proper fraction) ✓

Q13 Mathematics

The value of x in the equation $x + \frac{5}{27} = \frac{12}{27}$ is:

A. $\frac{1}{3}$

B. $\frac{10}{27}$

C. $\frac{7}{27}$ ✓

D. $\frac{9}{27}$

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Q14 Mathematics

Find the points of intersection of the line $4x - 3y = 10$ and the circle $x^2 + y^2 - 2x + 4y - 20 = 0$.

A. $(-2, 3)$ and $(4, 3)$

B. $(2, -3)$ and $(4, 2)$

C. $(4, 2)$ and $(-2, -6)$ ✓

D. $(-2, 3)$ and $(4, 2)$

Q15 Mathematics

Ramani started a business with a capital of ₹8,000. Vanita joined the business after 4 months with a capital of ₹6,000. At the end of one year of business if they earned a profit of ₹3,600, then the share of Vanita is:

A. ₹1,200 ✓

B. ₹2,400

C. ₹1,800

D. ₹1,500

Q16 Mathematics

The smallest number that can be divided exactly by 16, 18, 27 and 45 is:

A. 1060

B. 2160 ✓

C. 1640

D. 1540

Q17 Mathematics

Two trains, 145 m and 155 m in length, run on parallel tracks. One train runs at the speed of 32 km/h and the other at 40 km/h. When both trains run in opposite direction, then the time required for them to cross each other completely from the moment they meet is:

A. 20 sec

B. 10 sec

C. 15 sec ✓

D. 12 sec

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Q18 Mathematics

Find the value of

$\cos1° \cos2° \cos3° \ldots \cos89° \cos90°$.

A. 1

B. $\frac{1}{\sqrt{2}}$

C. 0 ✓

D. $\frac{1}{2}$

Q19 Mathematics

A sum of ₹30,000 is invested on compound interest of $7\frac{1}{2}\%$ p.a. What is the sum at the end of the second year?

A. ₹34,658.75

B. ₹34,668.75 ✓

C. ₹34,658

D. ₹34,668

Q20 Mathematics

The third proportional to 16 and 36 is:

A. 49

B. 144

C. 81 ✓

D. 64

Q21 Mathematics

x अक्ष पर ऐसे बिंदुओं की संख्या ज्ञात कीजिए, जो बिंदु (2 , 3) से 'c' इकाई ($c < 3$) की दूरी पर स्थित हों।

A. 3

B. 1

C. 2

D. 0 ✓

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Q22 Mathematics

If a, b, c and d are in continued proportion, then $(ma^3 + nb^3 - rc^3) : (mb^3 + nc^3 - rd^3) = ?$

A. a : d ✓

B. b : c

C. c : b

D. d : a

Q23 Mathematics

The number that has factors other than 1 and itself is called a _____ number.

A. even

B. odd

C. prime

D. composite ✓

Q24 Mathematics

If Mohan secured 72% marks in physics and 68% in chemistry, what percentage of marks did Mohan get in both subjects together, assuming that the two subjects have equal weightage?

A. 70% ✓

B. 55%

C. 65%

D. 60%

Q25 Mathematics

The radius of a wheel is 70 cm. If the wheel makes 10 revolutions in 5 seconds covering a certain distance, then the speed of the wheel is:

A. 31.68 km/h ✓

B. 32.72 km/h

C. 36.25 km/h

D. 29.46 km/h

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Q26 Mathematics

ΔABC is a triangle whose vertices are A(0, 0), B(a, 5) and C(-5, 5). If the triangle is right-angled at A, then find the value of a.

A. 5 ✓

B. 6

C. 3

D. 2

Q27 Mathematics

Solve the following.

Subtract $\frac{9}{2}+\frac{x}{2}+\frac{3}{5}x^2+\frac{7}{4}x^3$. from $\frac{7}{2}-\frac{x}{3}-\frac{1}{5}x^2$.

A. $1-\frac{5}{6}x-\frac{4}{5}x^2+\frac{7}{4}x^3$

B. $-1-\frac{5}{6}x-\frac{4}{5}x^2-\frac{7}{4}x^3$ ✓

C. $1-\frac{5}{6}x+\frac{4}{5}x^2+\frac{7}{4}x^3$

D. $1-\frac{5}{6}x+\frac{4}{5}x^2-\frac{7}{4}x^3$

Q28 Mathematics

The difference between two numbers is 45. When 20% of the larger number is added to 35% of the smaller number, we get a sum of 31. What is the sum of the original numbers?

A. 115

B. 135

C. 131

D. 125 ✓

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Q29 Mathematics

The product of two numbers is 259200 and their LCM is 4320. The HCF of the same two numbers is:

A. 45

B. 60 ✓

C. 58

D. 65

Q30 Mathematics

A alone can complete a task in 30 days, while B alone can complete it in 40 days. A and B, working together, can complete the same task in:

A. $15\frac{2}{7}$ days

B. $18\frac{3}{7}$ days

C. $11\frac{2}{7}$ days

D. $17\frac{1}{7}$ days ✓

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

A man crosses a street 600 m long in 24 minutes. Find his speed in km/h.

A. 1.5 km/h ✓

B. 3 km/h

C. 2.5 km/h

D. 2 km/h

Q2 Mathematics

The two sides containing the right angle in a right-angled triangle are 8 cm and 15 cm respectively. What is the length of the hypotenuse?

A. 17 cm ✓

B. 25 cm

C. 23 cm

D. $\sqrt{161}$ cm

Q3 Mathematics

15% of x = 25% of y = 50% of z. Find x : y : z.

A. 10 : 5 : 3

B. 3 : 2 : 1

C. 10 : 6 : 3 ✓

D. 3 : 5 : 10

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Q4 Mathematics

The value of 0.9% of 10 is:

A. $\frac{90}{100}$

B. $\frac{9}{10}$

C. $\frac{9}{1000}$

D. $\frac{9}{100}$ ✓

Q5 Mathematics

Three years ago, the average age of A and B was 28 years. With C joining them, their current average age becomes 42 years. How old is C now?

A. 68 years

B. 73 years

C. 64 years ✓

D. 77 years

Q6 Mathematics

If a is 7.5% of b, b is 1.50% of c and d is 5% of c, then find a : d.

A. 8 : 100

B. 8 : 300

C. 9 : 100

D. 9 : 400 ✓

Q7 Mathematics

What is 1.5 percent of ₹36?

A. ₹3.75

B. ₹0.54 ✓

C. ₹3.40

D. ₹5.4

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Q8 Mathematics

Find the value of:

$0.99 \times 0.999 \div 0.9999$.

A. 0.09

B. 0.99 ✓

C. 0.9

D. 10

Q9 Mathematics

The area of a square field is 10,000 m^2. Find the perimeter of the square whose side is equal to the diagonal of the field.

A. $400\sqrt{2}\,m$ ✓

B. 20,000 m

C. 40,000 m

D. 10,000 m

Q10 Mathematics

At what rate of compound interest per annum will a sum of ₹1,250 become ₹1,488.77 in 3 years?

A. 7%

B. 6% ✓

C. 6.5%

D. 7.5%

Q11 Mathematics

Solve the following :

$\frac{\tan 73^\circ}{\cot 17^\circ} = ?$

A. $\sqrt{3}$

B. 2

C. $\frac{\sqrt{3}}{3}$

D. 1 ✓

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Q12 Mathematics

The lowest whole number, which when subtracted from both the terms of the ratio 12 : 17 gives a ratio less than $\frac{11}{20}$, is:

A. 4

B. 3

C. 2

D. 6 ✓

Q13 Mathematics

Find the HCF of $\frac{6}{7}$ and $\frac{16}{210}$.

A. $\frac{16}{105}$

B. $\frac{16}{210}$

C. $\frac{1}{105}$ ✓

D. $\frac{7}{16}$

Q14 Mathematics

The number of non-congruent acute isosceles triangles in which one angle is 4 times another angle is:

A. 3

B. 1 ✓

C. 2

D. 4

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Q15 Mathematics

Find the value of:

$5[9 - 6\{3 - 2(-1 - 6)\}]$.

A. 465

B. -285

C. -85

D. -465 ✓

Q16 Mathematics

A, B and C are three points on a circle such that the angles subtended by the chords AB and AC at the centre O are 90° and 110° respectively and $\angle BAC > \angle BAO$ then $\angle$ BAC =?

A. 80° ✓

B. 45°

C. 100°

D. 55°

Q17 Mathematics

Solve the following:

$\frac{1}{2}\left[\frac{3}{4} - \left\{\frac{1}{4} - (-5 - 3)\right\}\right]$.

A. $-3\frac{1}{4}$

B. $-3\frac{3}{4}$ ✓

C. $3\frac{1}{4}$

D. $3\frac{3}{4}$

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Q18 Mathematics

If 40% of 50 = x% of 80, what is the value of x?

A. 30

B. 20

C. 40

D. 25 ✓

Q19 Mathematics

A can complete $\frac{1}{3}$ of a piece of work in 5 days and B can do $\frac{2}{5}$ of the work in 10 days. In how many days can both A and B together do the work?

A. $8\frac{31}{8}$ days

B. $7\frac{1}{8}$ days

C. $9\frac{3}{8}$ days ✓

D. $4\frac{1}{4}$ days

Q20 Mathematics

Anupama sold a book at a profit of 10%. Had she sold it for ₹20 more, 15% would have been gained, find the cost price of the book.

A. ₹500

B. ₹375

C. ₹450

D. ₹400 ✓

Q21 Mathematics

If $\tan\theta = -\frac{4}{3}$, then $\sin\theta$ is:

A. $\frac{5}{6}$ or $\frac{6}{5}$

B. $\frac{4}{5}$ but not $\frac{-4}{5}$

C. $\frac{-4}{5}$ but not $\frac{4}{5}$

D. $\frac{-4}{5}$ or $\frac{4}{5}$ ✓

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Q22 Mathematics

The lengths of the two shorter sides of a right triangle are 7 cm and 24 cm. What is the length of the circumradius of this triangle?

A. 12.5 cm ✓

B. 15.5 cm

C. 16 cm

D. 12 cm

Q23 Mathematics

The number of factors of 4200 are:

A. 48 ✓

B. 56

C. 46

D. 64

Q24 Mathematics

Find the perimeter of a rectangle that has a length 5 m more than its width and a perimeter equal in value to one-third of its area.

A. 50 m ✓

B. 60 m

C. 45 m

D. 40 m

Q25 Mathematics

The speed of a boat in still water is 30 km/h and the rate of current is 6 km/h. Find the distances travelled downstream and upstream in 5 minutes each way.

A. 3 km downstream; 2 km upstream ✓

B. 3 km downstream; 4 km upstream

C. 3 km downstream; 3 km upstream

D. 2 km downstream; 2 km upstream

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Q26 Mathematics

Find the LCM of two numbers, if their HCF is 2 and product is 120.

A. 120

B. 60 ✓

C. 90

D. 30

Q27 Mathematics

From every perfect square NOT exceeding 101, Rahul subtracts 5. What is the average of the numbers Rahul obtained?

A. -11.5

B. 37.5

C. 38

D. 33.5 ✓

Q28 Mathematics

If $\frac{x}{a}+\frac{y}{b}+\frac{z}{c}=\sqrt{3}$ and $\frac{a}{x}+\frac{b}{y}+\frac{c}{z}=0$, the find the value of $\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{z^2}{c^2}$.

A. 3 ✓

B. 6

C. 0

D. $\sqrt{3}$

Q29 Mathematics

If ${}^{n}C_{3}={}^{n}C_{8}$, then find n.

A. 14

B. 12

C. 11 ✓

D. 10

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Q30 Mathematics

Find the value of $\sqrt{\frac{576}{625}}$.

A. 10

B. 0.99

C. 0.96 ✓

D. 0.9

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Mathematics 30 Questions • Answer Key

Q1 Mathematics

ABCD is a square and Q is a point in its interior such that Δ QAB is equilateral. The measure of $\angle$QCB is:

A. 60°

B. 30°

C. 45°

D. 75° ✓

Q2 Mathematics

What number should be added to $\frac{-5}{11}$ to obtain $\frac{26}{33}$?

A. $\frac{41}{33}$ ✓

B. $\frac{11}{33}$

C. $\frac{21}{33}$

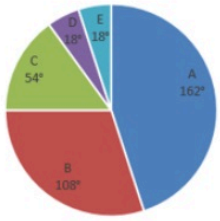
D. $\frac{33}{33}$

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Q3 Mathematics

Study the given pie chart and answer the question that follows.



The pie chart shows the employment details of the population of a country. The total population of the country is 5000. A indicates those employed in the public sector, B indicates those employed in the private sector, C indicates those employed in the corporate sector, D indicates those who are self-employed and E indicates those who are unemployed.

What percentage of the employed people are employed in the private sector?

A. 29%

B. 31%

C. 33.3%

D. 31.58% ✓

Q4 Mathematics

Which smallest number must be subtracted from 3467860 so that it becomes exactly divisible by 19?

A. 18 ✓

B. 30

C. 50

D. 11

Q5 Mathematics

Find the value of $-5\{-5-(-5-2)-5\}$.

A. -15

B. 18

C. 15 ✓

D. -18

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Q6 Mathematics

What should be added to $\left(\frac{1}{2}+\frac{1}{3}+\frac{1}{5}\right)$ to get 3?

A. $\frac{3}{10}$

B. $\frac{59}{10}$

C. $\frac{54}{30}$

D. $\frac{59}{30}$ ✓

Q7 Mathematics

Ram and Shyam can finish a work in 30 days, Shyam and Bharti can finish it in 40 days and Bharti and Ram can finish it in 60 days. How long will they three together take to finish the work?

A. $25\frac{1}{3}$ days

B. $15\frac{1}{3}$ days

C. $26\frac{2}{3}$ days ✓

D. $12\frac{2}{3}$ days

Q8 Mathematics

The speed of three buses are in the ratio of 5 : 4 : 6. The ratio between the time taken by them to travel the same distance will be:

A. 5 : 4 : 6

B. 12 : 15 : 10 ✓

C. 6 : 4 : 5

D. 10 : 12 : 15

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Q9 Mathematics

The LCM of two numbers is 1024, and one of them is a prime number. Find their GCD.

A. 2 ✓

B. 3

C. 5

D. 7

Q10 Mathematics

In a ΔABC, if $\angle A + \angle B = 110°$ and $\angle B - \angle A = 10°$, then which of the following statements holds true for the triangle?

A. The length of AB is the same as that of BC.

B. AB is the longest side and BC is the shortest side. ✓

C. AB is the longest and AC is the shortest side.

D. AC is the longest side and BC is the shortest side.

Q11 Mathematics

Find the value of $\frac{(0.9 \times 0.9 \times 0.9)}{0.9}$.

A. 0.81 ✓

B. 8.1

C. 0.081

D. 81

Q12 Mathematics

What is the least number that when divided by 18 and 24 leaves a reminder of 11 and 17, respectively?

A. 24

B. 72

C. 65 ✓

D. 79

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Q13 Mathematics

Shyam gets back the amount he had invested in buying 100 books by selling 65 of them. What is his profit percentage?

A. $53\frac{11}{13}\%$ ✓

B. 35%

C. $49\frac{9}{13}\%$

D. 65%

Q14 Mathematics

If a woman covers a distance of $10\frac{1}{5}$ km in 3 hours, then find the distance covered by her in 5 hours.

A. 12 km

B. 13 km

C. 15 km

D. 17 km ✓

Q15 Mathematics

The average of 7, 14, 21, 28, … 77 is:

A. 42 ✓

B. 66

C. 7

D. 11

Q16 Mathematics

6% of (25% of ₹900) is:

A. ₹13.50 ✓

B. ₹9

C. ₹12.50

D. ₹27

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Q17 Mathematics

In a cuboid, the sum of the squares of its three dimensions is equal to half of its total surface area. If the volume of the cuboid is 729 cm^3, then find its lateral surface area (in cm^2).

A. 900

B. 576

C. 648

D. 324 ✓

Q18 Mathematics

The HCF of all the natural numbers from 200 to 478 is:

A. 3

B. 1 ✓

C. 2

D. 478

Q19 Mathematics

If ${}^{n}c_4 = 70$, then find n.

A. 5

B. 8 ✓

C. 6

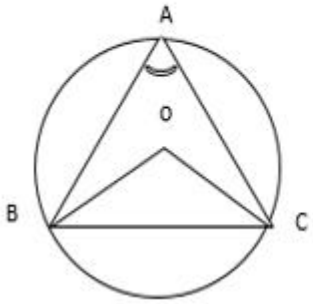
D. 4

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Q20 Mathematics

In the given figure, the measure of $\angle BAC + \angle OBC$ is equal to:



A. Cannot be determined

B. $45°$

C. $90°$ ✓

D. $60°$

Q21 Mathematics

The least number of years in which a sum of money invested at 20 % compound interest will become more than its double is:

A. 5

B. 3

C. 6

D. 4 ✓

Q22 Mathematics

What is the smallest positive integer required to be added to 2712 to make the sum a perfect cube?

A. 10

B. 150

C. 517

D. 32 ✓

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Q23 Mathematics

If $x : y = y : z = 2 : 3$, then find $x : y : z$.

A. $4 : 6 : 9$ ✓

B. $4 : 6 : 7$

C. $2 : 3 : 4$

D. $4 : 5 : 8$

Q24 Mathematics

Consider the average of any five consecutive odd natural numbers as p. If two more consecutive odd numbers, just next to the previous five numbers, are added, then the new average will become:

A. $\frac{2}{7}(p + 1)$

B. $2p + 1$

C. $2p - 3$

D. $p + 2$ ✓

Q25 Mathematics

A certain number of women went to a hotel. Each woman spent as many rupees as one-fourth of the number of women. If the total bill paid was ₹20,449, then how many women visited the hotel?

A. 281

B. 284

C. 286 ✓

D. 283

Q26 Mathematics

Raju takes twice as long to row upstream as to row downstream in a river. If the river flows at 5 km/h, then find the speed of Raju in still water.

A. 13 km/h

B. 19 km/h

C. 15 km/h ✓

D. 17 km/h

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Q27 Mathematics

A toy is sold at a profit of 16%. Had it been sold for ₹10 more, the profit would have been 20%. Find its cost price.

A. ₹250 ✓

B. ₹300

C. ₹240

D. ₹260

Q28 Mathematics

If $\tan 3\theta = \cot(60^\circ - \theta)$ and 3θ is an acute angle, then find the value of $\tan 2\theta$.

A. $\sqrt{3}$

B. 2

C. 1

D. $\frac{\sqrt{3}}{3}$ ✓

Q29 Mathematics

The value of $\frac{\tan 1^\circ \tan 2^\circ \tan 3^\circ ..... \tan 89^\circ}{\tan 45^\circ}$ is equal to:

A. 90

B. Not defined

C. 1 ✓

D. 0

Q30 Mathematics

The ratio between two numbers is 3:5 and their sum is 80. Find the greater of the two numbers.

A. 50 ✓

B. 45

C. 55

D. 60

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Mathematics

30 Questions • Answer Key

Q1 Mathematics HINDI - no English version saved

एक थैले में 2 लाल, 3 हरी और 2 नीली गेंदे हैं। उनमें से यादृच्छिक रूप से दो गेंदे निकाली जाती हैं। निकाली गई गेंदो में से किसी भी गेंद के नीली न होने की प्रायिकता ज्ञात कीजिए?

A. $\frac{10}{21}$ ✓

B. $\frac{6}{21}$

C. $\frac{5}{7}$

D. $\frac{10}{14}$

Q2 Mathematics HINDI - no English version saved

वह छोटी से छोटी संख्या ज्ञात कीजिए, जिसे 20, 25, 35 और 40 से विभाजित करने पर क्रमशः 15, 20, 30 और 35 शेष बचता हो।

A. 1395 ✓

B. 1240

C. 1860

D. 7265

Q3 Mathematics HINDI - no English version saved

अरुण और शेखर के पास कुछ धनराशियां हैं। यदि अरुण, शेखर को ₹30 दे देता है, तो शेखर के पास, अरुण के पास बची धनराशि से दो गुनी धनराशि हो जाएगी। यदि शेखर, अरुण को ₹10 दे देता है, तो अरुण के पास, शेखर के पास बची धनराशि से तीन गुनी धनराशि हो जाएगी। प्रारंभ में, अरुण और शेखर में से प्रत्येक के पास क्रमशः कितनी धनराशि (₹ में) है?

A. 62, 34 ✓

B. 34, 62

C. 34, 72

D. 56, 78

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Q4 Mathematics HINDI - no English version saved

10.8, 28.8 और 36 का महत्तम समापवर्तक (HCF) ज्ञात कीजिए।

A. 28

B. 3.6 ✓

C. 2.8

D. 36

Q5 Mathematics HINDI - no English version saved

यदि 5 मानों का प्रसरण (variance) 0.64 है, तो उनका मानक विचलन ज्ञात कीजिए।

A. 0.8 ✓

B. 0.128

C. 3.2

D. 5.64

Q6 Mathematics HINDI - no English version saved

1944 में अल्फ्रेड की आयु, उसके जन्म के वर्ष के $\frac{1}{80}$ के बराबर थी। 1952 में अल्फ्रेड की आयु कितनी थी?

A. 28 वर्ष

B. 32 वर्ष ✓

C. 30 वर्ष

D. 26 वर्ष

Q7 Mathematics HINDI - no English version saved

वह छोटी से छोटी प्राकृत संख्या ज्ञात कीजिए, जिससे 3600 को विभाजित करने पर प्राप्त संख्या पूर्ण घन हो?

A. 300

B. 450 ✓

C. 250

D. 100

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Q8 Mathematics HINDI - no English version saved

निम्नलिखित को हल कीजिए:

$$\frac{3\frac{1}{4}-\frac{4}{5}\times\frac{5}{6}}{4\frac{1}{3}\div\frac{1}{5}-\left(\frac{3}{10}+21\frac{1}{5}\right)}-\left(1\frac{2}{3}\times 1\frac{1}{2}\right)=?$$

A. 9

B. $11\frac{1}{2}$

C. 13 ✓

D. $15\frac{1}{2}$

Q9 Mathematics HINDI - no English version saved

यदि $\tan\theta=\frac{\sqrt{3}+1}{2}$ है, तो $2\sqrt{3}\cot\theta+1$ का मान ज्ञात कीजिए।

A. $\frac{5\sqrt{3}-1}{\sqrt{3}+1}$

B. $\frac{5\sqrt{3}-1}{\sqrt{3}-1}$

C. $\frac{5\sqrt{3}+1}{\sqrt{3}+1}$ ✓

D. $\frac{2\sqrt{3}-1}{2}$

Q10 Mathematics HINDI - no English version saved

किसी वस्तु को ₹832 में बेचने पर होने वाला लाभ, उस वस्तु को ₹448 में बेचने पर होने वाली हानि के बराबर है। 50% लाभ कमाने के लिए उस वस्तु को कितने मूल्य पर बेचा जाना चाहिए?

A. ₹1,230

B. ₹960 ✓

C. ₹900

D. ₹826

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Q11 Mathematics HINDI - no English version saved

16% लाभ पर किसी वस्तु का विक्रय मूल्य ₹40.60 है, तो उस वस्तु का क्रय मूल्य ज्ञात कीजिए।

A. ₹40

B. ₹35 ✓

C. ₹22

D. ₹47

Q12 Mathematics HINDI - no English version saved

A अकेले किसी कार्य को 12 दिन में पूरा कर सकता है और B अकेले उसी कार्य को 10 दिन में पूरा कर सकता है। A से शुरू करके, यदि वे दोनों एक-एक दिन छोड़कर कार्य करते हैं, तो वह कार्य कितने दिन में पूरा हो जाएगा?

A. $10\frac{5}{6}$

B. 11 ✓

C. 12

D. $11\frac{3}{4}$

Q13 Mathematics HINDI - no English version saved

एक दूधवाला, ₹6.40 प्रति लीटर के भाव पर दूध खरीदता है। वह उसमें पानी मिलाता है और मिश्रण को ₹8 प्रति लीटर के भाव पर बेचता है और इस प्रकार वह 37.5% लाभ कमाता है। जो दूध ग्राहक को प्राप्त हुआ, उसमें पानी और दूध का अनुपात ज्ञात कीजिए।

A. 1 : 10 ✓

B. 1 : 11

C. 1 : 9

D. 2 : 11

Q14 Mathematics HINDI - no English version saved

$\frac{(54.542^2 - 45.458^2)}{(61.738 - 52.654)}$ का मान ज्ञात कीजिए।

A. 67.542

B. 32.458

C. 35.084

D. 100 ✓

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Q15 Mathematics HINDI - no English version saved

यदि $\sqrt{40}$ का मान 6.325 के लगभग बराबर है, तो $\sqrt{\frac{8}{5}}$ का मान इनमें से किसके लगभग बराबर होगा?

A. 1.625

B. 1.265 ✓

C. 2.828

D. 0.565

Q16 Mathematics HINDI - no English version saved

k का वह मान ज्ञात कीजिए, जिसके लिए समीकरण निकाय $2x + ky = 11$, $5x - 7y = 5$ का कोई हल न हो।

A. $\frac{13}{5}$

B. $\frac{-16}{5}$

C. $\frac{-14}{5}$ ✓

D. $\frac{-13}{5}$

Q17 Mathematics HINDI - no English version saved

17 और 520 के बीच आने वाली उन सभी संख्याओं का योग ज्ञात कीजिए, जो 6 से विभाज्य हों।

A. 21912

B. 22428 ✓

C. 22440

D. 22446

Q18 Mathematics HINDI - no English version saved

किसी दीवार के सहारे झुकी हुई एक सीढ़ी का उन्नयन कोण 60° है और सीढ़ी का निचला सिरा दीवार से 15 m की दूरी पर स्थित है। सीढ़ी की लंबाई ज्ञात कीजिए।

A. $15\sqrt{3}$ m

B. 30 m ✓

C. 7.5 m

D. 15 m

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Q19 Mathematics HINDI - no English version saved

एक धनराशि, एक निश्चित चक्रवृद्धि ब्याज की दर पर 15 वर्ष में स्वयं की दो गुनी हो जाती है। कितने वर्ष में यह स्वयं की आठ गुनी हो जाएगी?

A. 45 ✓

B. 75

C. 60

D. 30

Q20 Mathematics HINDI - no English version saved

एक कमरे की लंबाई, चौड़ाई और ऊँचाई का अनुपात 4 : 3 : 2 है। यदि इसकी लंबाई और ऊँचाई को आधा कर दिया जाए, और इसकी चौड़ाई को दो गुना कर दिया जाए, तो कमरे की चारों दीवारों का नया क्षेत्रफल _____ ।

A. अपरिवर्तनीय रहेगा

B. लगभग 26% कम हो जाएगा

C. लगभग 13.64% कम हो जाएगा

D. लगभग 42.86% कम हो जाएगा ✓

Q21 Mathematics HINDI - no English version saved

एक टैंक के आंतरिक भाग की लंबाई 25 m, चौड़ाई 12 m और गहराई 6 m है। 75 पैसे प्रति m^2 की दर से इसकी दीवारों और तली पर अंदर की ओर प्लास्टर कराने की लागत ज्ञात कीजिए।

A. ₹512

B. ₹496

C. ₹558 ✓

D. ₹458

Q22 Mathematics HINDI - no English version saved

बिंदु P पर खड़ा एक आदमी, एक मीनार के शीर्ष S को देख रहा है, आदमी की आँख से मीनार के शीर्ष का उन्नयन कोण 30° है। वह आदमी, 20 m मीनार की ओर चलने के पश्चात उसके शीर्ष को देखता है, तो उन्नयन कोण बढ़कर 45° हो जाता है। मीनार के आधार और बिंदु P के बीच की दूरी ज्ञात कीजिए ($\sqrt{3} = 1.732$ लें)?

A. 22.7 m

B. 27.32 m

C. 14.64 m

D. 47.32 m ✓

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Q23 Mathematics HINDI - no English version saved

3.5 cm त्रिज्या वाले तीन वृत्त इस प्रकार रखे गए हैं कि प्रत्येक वृत्त, अन्य दो वृत्तों को स्पर्श करता है। तीनों वृत्तों से घिरे भाग का क्षेत्रफल ज्ञात कीजिए। ($\sqrt{3} = 1.732$ लें)

A. $1.967\ \text{cm}^2$ ✓

B. $2.56\ \text{cm}^2$

C. $1.856\ \text{cm}^2$

D. $1.652\ \text{cm}^2$

Q24 Mathematics HINDI - no English version saved

एक मिश्रण की 85 L मात्रा में दूध और पानी का अनुपात 27 : 7 है। उसमें कितना पानी और मिलाया जाना चाहिए, ताकि नए मिश्रण में दूध और पानी का अनुपात 3 : 1 हो जाए?

A. 15 L

B. 5 L ✓

C. 8 L

D. 13 L

Q25 Mathematics HINDI - no English version saved

यदि हरि की आय, मधु की आय से 20% अधिक है; तो मधु की आय, हरि की आय से कितने प्रतिशत कम है?

A. $16\frac{2}{3}\%$ ✓

B. 22%

C. 15%

D. 20%

Q26 Mathematics HINDI - no English version saved

एक आदमी को पैदल किसी स्थान तक जाने और गाड़ी से उस स्थान से वापस आने में 5 h 45 min मिनट का समय लगता है। यदि वह दोनों तरफ गाड़ी से जाता, तो उसे 2 h कम समय लगता। यदि वह दोनों तरफ पैदल जाता है, उसे इस यात्रा में कितना समय लगेगा?

A. 7 h 45 min ✓

B. 7 h 30 min

C. 11 h 45 min

D. 11 h 30 min

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Q27 Mathematics HINDI - no English version saved

सतीश एक कार को अपराह्न 2:00 बजे भाड़े पर लेता है और 75 km/h की चाल से कार चलाते हुए रिजॉर्ट पाम बीच की ओर निकलता है, जो उसके घर से 800 km दूर है। वह अपराह्न 3:00 बजे अपने पड़ोसी रमन को कॉल करता है और रिजॉर्ट आकर उससे मिलने के लिए कहता है। रमन तत्काल एक अन्य कार से 90 km/h की चाल से सतीश वाले मार्ग से होते हुए रिजॉर्ट की ओर निकलता है। रमन कितने बजे सतीश को पकड़ लेगा?

A. अपराह्न 7 बजे

B. अपराह्न 9 बजे

C. अपराह्न 8 बजे ✓

D. अपराह्न 8:30 बजे

Q28 Mathematics HINDI - no English version saved

संख्या 12401 को किसी संख्या से विभाजित करने पर, हमें भागफल के रूप में 76 और शेष के रूप में 13 प्राप्त होता है। भाजक ज्ञात कीजिए।

A. 947

B. 136

C. 163 ✓

D. 948

Q29 Mathematics HINDI - no English version saved

किसी परीक्षा में 80% छात्र अंग्रेजी में उत्तीर्ण हुए, 85% छात्र गणित में उत्तीर्ण हुए तथा 75% छात्र अंग्रेजी और गणित दोनों में उत्तीर्ण हुए। यदि 40 छात्र दोनों विषयों में अनुत्तीर्ण हुए हों, तो छात्रों की कुल संख्या ज्ञात कीजिए।

A. 100

B. 158

C. 400 ✓

D. 44

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Q30 Mathematics HINDI - no English version saved

दी गई परिमेय संख्याओं को आरोही क्रम में रखें:

$-\frac{7}{10'}, \frac{5}{-8'}, \frac{2}{-3}$

A. $-\frac{7}{10'}, \frac{5}{-8'}, \frac{2}{-3}$

B. $-\frac{7}{10'}, \frac{2}{-3'}, \frac{5}{-8}$ ✓

C. $\frac{5}{-8'}, -\frac{7}{10'}, \frac{2}{-3}$

D. $\frac{2}{-3'}, \frac{5}{-8'}, -\frac{7}{10}$

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