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

RRB NTPC 2019 CBT-2

Non-Technical Popular Categories · CEN 01/2019 · CBT-2 (Levels 2, 3, 4, 5, 6) · Mathematics · Question Paper

English

All 18 Shifts (Sets) · Mathematics Section · Official Answer Key

About this Compilation

This booklet contains all **18 shift papers** of the **RRB NTPC 2019 CBT-2** 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 35, General Intelligence and Reasoning 35, General Awareness 50 in every shift. Question numbers follow the saved paper of each shift.

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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Q1 Mathematics

Find the median of the numbers given below:

2, 7, 5, 6, 7, 5, 4, 4, 0, 3, 0, 3, 1, 1, 3

A. 3 ✓

B. 4.5

C. 4

D. 3.5

Q2 Mathematics

A 265 m long train is running at 61 km/h. In how much time (in seconds) will it cross another train of length 245 m running at 47 km/h in the opposite direction?

A. 19

B. 15

C. 14

D. 17 ✓

Q3 Mathematics

The ratio of the radius of the base and the height of a right circular cylinder is 3:2, and its volume is 19404 cm^3 . What is the curved surface area (in cm^2) of the cylinder? (Take $\pi = \frac{22}{7}$)

A. 924

B. 1386

C. 1848 ✓

D. 1232

Q4 Mathematics

What is the simple interest (in ₹) on ₹540 at 6% per annum in $3\frac{1}{2}$ years?

A. 113.40 ✓

B. 313.40

C. 213.40

D. 13.40

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Q5 Mathematics

The length of a rectangular plot is thrice its breadth. If the length of its diagonal is $18\sqrt{10}$ cm, then the perimeter of the rectangle is:

A. 100 cm

B. 108 cm

C. 72 cm

D. 144 cm ✓

Q6 Mathematics

Simplify: $\sqrt{\frac{\sqrt{1875}}{\sqrt{3888}} \times \frac{\sqrt{768}}{\sqrt{1200}}}$

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

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

C. $\frac{\sqrt{5}}{3}$ ✓

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

Q7 Mathematics

If $\sin\theta + \left(\frac{1}{4}\right)\operatorname{cosec}\theta = 1$, and $0 \leq \theta \leq 90^{0}$, then find the value of θ.

A. 45°

B. 30° ✓

C. 0°

D. 60°

Q8 Mathematics

The ratio of two numbers is 11 : 4 and their HCF is 16. What is the sum of these two numbers?

A. 240 ✓

B. 224

C. 320

D. 256

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Q9 Mathematics

The selling price of x items is equal to the cost price of 32 items and profit percent is 28 %. What is the value of x ?

A. 30

B. 24

C. 25 ✓

D. 21

Q10 Mathematics

A and B are numbers such that A is 40 % larger than B. If A is decreased by 20 % and B is increased by 38 %, then what is the percentage increase in the total value of A and B?

A. $4\frac{1}{6}$ % ✓

B. 5 %

C. $8\frac{1}{3}$ %

D. 10 %

Q11 Mathematics

15 people can do a piece of work in 12 days. How many people can complete the same work in 20 days?

A. 9 ✓

B. 10

C. 12

D. 8

Q12 Mathematics

How much water should be added to 90 ml of a 38% sugar solution so that it becomes a 17.1% sugar solution?

A. 100 ml

B. 110 ml ✓

C. 95 ml

D. 81 ml

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Q13 Mathematics

What is the area of a right-angled triangle, the length of whose sides are 10 cm, 24 cm and 26 cm?

A. $140\ cm^2$

B. $110\ cm^2$

C. $130\ cm^2$

D. $120\ cm^2$ ✓

Q14 Mathematics

The area of the base of a conical tomb is 616 m^2 and its height is 48m. What is the cost of plastering its curved surface area at ₹150 per m^2? (Take $\pi=\frac{22}{7}$)

A. ₹330000 ✓

B. ₹315000

C. ₹360000

D. ₹300000

Q15 Mathematics

Each interior angle of a regular polygon measures 168°. How many sides does this polygon have?

A. 36

B. 24

C. 20

D. 30 ✓

Q16 Mathematics

The value of $36 \div (8 \times 3) - [3 \div \{4 \times \{3 \times 4 \div (5-9)+6\}\}]$ lies between

A. 1.3 and 1.6

B. 1.6 and 1.9

C. 0.7 and 1

D. 1 and 1.3 ✓

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Q17 Mathematics

A can do $66\frac{2}{3}\%$ of a work in 8 days. B is 40% less efficient than A. The two work together for 5 days and then both leave. C completes the remaining work in 6 days. In how many days can A and C together complete the original work?

A. $8\frac{8}{19}$

B. $7\frac{1}{2}$

C. $9\frac{9}{19}$

D. $7\frac{1}{5}$ ✓

Q18 Mathematics

If $x^4 - 6x^2 - 1 = 0$, then what is the value of $(x^6 - x^{-6}) - 3(x^4 + x^{-4})$?

A. 120 ✓

B. 178

C. 156

D. 148

Q19 Mathematics

Which of the options given below is divisible by 12?

A. 284576

B. 157844

C. 236796 ✓

D. 194792

Q20 Mathematics

What is the compound interest on ₹2,50,000 at 16% per annum for 9 months, compounded quarterly?

A. ₹31,216 ✓

B. ₹32,126

C. ₹32,246

D. ₹30,612

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Q21 Mathematics

What will be the perimeter of a quarter circle having a radius of 10 cm? [Use $\pi = 3.14$]

A. 35.7 cm ✓

B. 15.7 cm

C. 25.7 cm

D. 51.4 cm

Q22 Mathematics

By selling an article for ₹ 211.20, a trader loses 12 %. If he sells it for ₹ 248.40, then his loss/gain percent is

A. Loss, 5 %

B. Gain, 5.5 %

C. Loss, 2.5 %

D. Gain, 3.5 % ✓

Q23 Mathematics

A well of radius 2 m is dug 16.8 m deep. The soil taken out of it is spread evenly all around the well to form a 48 cm high embankment. What is the width (in m) of the embankment?

A. 9.6

B. 8

C. 10 ✓

D. 8.4

Q24 Mathematics

Simplify the following expression:

$$\frac{2}{3} + \frac{4}{9} \div \left(\frac{7}{2} - \frac{5}{6}\right)$$

A. $\frac{5}{6}$ ✓

B. $\frac{11}{12}$

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

D. 1

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Q25 Mathematics

A goods train overtakes two boys who are walking in the same direction in which the train is going, at the rate of 5 kmph and 10 kmph and passes them completely in 21 and 24 seconds respectively. What is the length of the goods train (in metres)?

A. $260\frac{2}{3}$

B. 210

C. $233\frac{1}{3}$ ✓

D. 180

Q26 Mathematics

Simplify the following expression:

$2.06 - 3.16 + 4.59 - 1.79$

A. 1.75

B. 1.65

C. 1.80

D. 1.70 ✓

Q27 Mathematics

If $(x+1) : (x+5) :: (x+17) : (x+53)$ then what is the mean proportional between $(x+5)$ and $(9x-1)$ where $x > 0$?

A. $4\sqrt{3}$ ✓

B. $10\sqrt{2}$

C. $3\sqrt{2}$

D. $4\sqrt{13}$

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Q28 Mathematics

If 12 is subtracted from each of n values $x_1, x_2, \ldots, x_n$, then the sum of the resulting numbers is 92. If 8 is subtracted from each of the n values, then the sum of the numbers is 208. What is the mean of the given n values?

(Give your answer correct to one decimal place.)

A. 14.8

B. 15.2 ✓

C. 16.7

D. 13.5

Q29 Mathematics

$$\frac{5.2 \times 5.2 - 2.7 \times 2.7}{7.9 \times 2.5}$$ is equal to:

A. 1.0 ✓

B. 1.9

C. 0.3

D. 1.3

Q30 Mathematics

The least perfect square which is divisible by each of 27, 54 and 72 is

A. 1225

B. 1296 ✓

C. 1369

D. 1156

Q31 Mathematics

If interest is compounded annually at 10% per annum, then what would be the total amount payable on maturity when a sum of ₹5700 is invested for a period of two years?

A. ₹6897 ✓

B. ₹6887

C. ₹6997

D. ₹6987

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Q32 Mathematics

A circus runs two shows, one with a lion and another with an elephant, separately. The show with the elephant runs for 80 minutes, and the show with the lion runs for 120 minutes. Both shows start at 6 pm. At what time will both shows start again at the same time?

A. 8:20 pm

B. 7:40 pm

C. 7:00 pm

D. 10:00 pm ✓

Q33 Mathematics

A train 225 m long is running at a speed of 145 km/hr. What is the time (in seconds) in which it will pass a man who starts from the engine running at the speed of 17 km/hr in the direction opposite to that of the train?

A. 5 ✓

B. 7

C. 6

D. 4

Q34 Mathematics

If assumed mean, a= 142.5, $d_i = x_i - a$, f_i = frequency of x_i, the i-th value, $\Sigma f_i d_i = 130.5$ and $\Sigma f_i = 90$ then find the arithmetic mean of all the values of x_i.

A. 142.95

B. 143.3

C. 143.5

D. 143.95 ✓

Q35 Mathematics

Simplify: $5 + \frac{5 \times 5}{5} - 5$

A. 5 ✓

B. 25

C. 15

D. 10

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

Three friends A, B and C divide ₹5525 amongst them in such a way that if ₹50, ₹100 and ₹75 are removed from the sums that A, B and C received respectively, then the share of the sums that they get would have been in the ratio of 11 : 18 : 24. How much did C initially receive?

A. ₹1150

B. ₹2325

C. ₹1900

D. ₹2475 ✓

Q2 Mathematics

Two natural numbers are in the ratio of 6:5 and the product of their LCM and HCF is 6750. What is the sum of the numbers?

A. 145

B. 180

C. 160

D. 165 ✓

Q3 Mathematics

x is the smallest six-digit number which, when divided by 20, 21, 22, 24 and 28, the remainder in each case is 5. What will be the quotient when x is divided by 462?

A. 221

B. 224

C. 220 ✓

D. 226

Q4 Mathematics

Vaishali covers a certain distance by car at 50kmph and returns to the original place through the same route on a bicycle at 10kmph. If the time taken by her for the whole journey was 2 hours 24 minutes, then what was the total distance that she covered?

A. 50 km

B. 60 km

C. 40 km ✓

D. 48 km

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Q5 Mathematics

A tent is cylindrical upto a height of 6 m and conical above it. The diameter of the base is 90 m and the height of the conical part is 28 m. What is the area (in m^2) of canvas used in making it?

A. 2895π

B. 2940π

C. 2925π ✓

D. 2905π

Q6 Mathematics

Find the value of $(13)^3 + (-8)^3 + (-5)^3$

A. 41×38

B. -40×41

C. 39×40 ✓

D. -39×40

Q7 Mathematics

Julie can cover a distance of 140 m in 18 seconds. At that given speed how much distance can Julie cover in 1 hour?

A. 25.2 km

B. 31.5 km

C. 29.4 km

D. 28 km ✓

Q8 Mathematics

The time taken by a boat to go 7 km downstream is the same as the time taken by it to go 3 km upstream. It can go 14 km upstream and the same distance downstream in a total time of $6\frac{2}{3}$ hours. How much time (in hours) will it take to go 16.8 km upstream?

A. 7

B. 3.5

C. 4.2

D. 5.6 ✓

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Q9 Mathematics

X and Y can complete a certain work in 18 days and 30 days respectively. Z is 50 % more efficient than Y. Z and Y started the work but both had to leave after 4 days. The remaining work was completed by X with the assistance of P in the next 4 days. P alone can complete the original work in

A. 12 days

B. 10 days

C. 8 days

D. 9 days ✓

Q10 Mathematics

If the 7 digit number 504x5y3 is divisible by 11, then one of the values of the sum of x and y is

A. 11

B. 17 ✓

C. 7

D. 5

Q11 Mathematics

ΔABC is an equilateral triangle with side 12cm. CD is the bisector of $\angle C$ which meets AB at D and E is the mid-point of CD. What is the length of BE?

A. $3\sqrt{6}$ cm

B. 8 cm

C. $3\sqrt{7}$ cm ✓

D. $6\sqrt{2}$ cm

Q12 Mathematics

An amount of ₹1470 is shared between Anant and Mohan in the ratio 3 : 4. What is the amount received by Mohan?

A. ₹840 ✓

B. ₹630

C. ₹1050

D. ₹1650

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Q13 Mathematics

The length of each of a pair of opposite sides of a parallelogram is 16 cm and the perpendicular distance between these two sides is 10 cm. What is the area (in cm^2) of the parallelogram?

A. 80

B. 40

C. 320

D. 160 ✓

Q14 Mathematics

The maximum weight lifted by 750 participants are recorded and it is found that the Mean and the Median of this distribution are both more than the Mode. If the Mean and the Median are 184 Kg and 178 Kg respectively, then which of the following is the most likely value of the Mode (in Kg).

A. 166 ✓

B. 162

C. 168

D. 172

Q15 Mathematics

An equilateral triangle of side 12 cm is inscribed in a circle. What is the area (in cm^2) of the circle?

A. 18π

B. 36π

C. 24π

D. 48π ✓

Q16 Mathematics

12.5% of the first number is 37.5% of the second number. If the second number is subtracted from the first number, we get an answer of 1428. Find the sum of the two numbers.

A. 2936

B. 2856 ✓

C. 2846

D. 2716

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Q17 Mathematics

The value of $49 - [35 + \{12 \div 3 \text{ of } (6 + \overline{7 - 12})\}]$ is:

A. 9

B. -8

C. 10 ✓

D. -12

Q18 Mathematics

The initial profit percentage on the sale of an item was 74%. If the cost price of the item went up by 50% but the selling price remained the same, what would be the new profit percentage?

A. 24%

B. 13%

C. 16% ✓

D. 8%

Q19 Mathematics

If 11-digit number $88p554085k6$, $k \neq p$, is divisible by 72, then what is the value of $(3k + 2p)$?

A. 23

B. 12

C. 7

D. 13 ✓

Q20 Mathematics

Which of the following fractions should be added to $\frac{5}{9}$ to obtain $\frac{11}{6}$ as the sum?

A. $1\frac{7}{18}$

B. $1\frac{5}{18}$ ✓

C. $1\frac{1}{15}$

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

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Q21 Mathematics

The graphs of the equations $3x - 2y - 11 = 0$ and $x + y = 7$ intersect at P ($\propto$, β). What is the value of $(3\propto+5\beta)$?

A. 13

B. 23

C. 11

D. 25 ✓

Q22 Mathematics

Solve: $(4 + 2)$ of $9 - 6 \times 2 + \frac{5}{5}$

A. 41

B. 44

C. 43 ✓

D. 45

Q23 Mathematics

Suresh borrows ₹80000 at 24% per annum simple interest and Ramesh borrows ₹91000 at 20% per annum simple interest. In how many years will their amounts of debts be equal?

A. 20

B. 22

C. 11 ✓

D. 10

Q24 Mathematics

$0.46 \times 137.5 = 63.25$ What is the value of 460×1.375?

A. 63.25

B. 6325

C. 632.5 ✓

D. 6.325

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Q25 Mathematics

Paras can complete 40% of the work in 8 days while Deepti & Paras together can complete 10% of the work in a day. Find the time taken by Deepti alone to complete the work.

A. 20 days ✓

B. 22 days

C. 23 days

D. 21 days

Q26 Mathematics

The arithmetic mean of the first ten prime numbers is _____.

A. 12.9 ✓

B. 15.8

C. 10.1

D. 12.8

Q27 Mathematics

A sum of money was invested at simple interest at r % per annum for 3 years. Had the rate of interest been (r + 2) %, it would have fetched ₹84 more. Find the sum invested.

A. ₹1500

B. ₹1200

C. ₹1600

D. ₹1400 ✓

Q28 Mathematics

If the length and the height of a cuboid are 18 m and 12 m respectively, and its volume is 3024 m^3 , then find its breadth (in m).

A. 13

B. 14 ✓

C. 16

D. 15

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Q29 Mathematics

If an observation 70 is removed from the data 60, 68, 70, 72,74, 76, 78, 80, then the median is increased by :

A. 2

B. 1.5

C. 0.5

D. 1 ✓

Q30 Mathematics

A dealer sells an article for ₹ 123 after offering a discount of 18% on its marked price, If he sells it on the marked price, he gains 25%. What is the cost price (in ₹) of the article?

A. 125

B. 124

C. 115

D. 120 ✓

Q31 Mathematics

The value of $\frac{\left(11\frac{11}{12} \times 1\frac{3}{13} \div 2\frac{3}{4}\right) \div \left(\frac{7}{10} \div \left(\frac{3}{4} \times 1\frac{2}{5}\right)\right)}{\frac{1}{4} \times \frac{2}{3} \times 2\frac{2}{5}}$ is

A. 20 ✓

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

C. $3\frac{1}{5}$

D. 10

Q32 Mathematics

Find the compound interest on ₹32000 for 6 months at 12% per annum compounded quarterly?

A. ₹1947.80

B. ₹1948.80 ✓

C. ₹1948

D. ₹1947

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Q33 Mathematics

What is the HCF of 144, 360 and 504?

A. 24

B. 36

C. 18

D. 72 ✓

Q34 Mathematics

ABCDEF is a regular hexagon and m($\overline{BE}$) = 14 cm. What is the perimeter of the hexagon?

A. 30 cm

B. 48 cm

C. 36 cm

D. 42 cm ✓

Q35 Mathematics

The diameter of base of a right circular cone is 20 cm and its slant height is 10.5 cm. What is the curved surface area (in cm^2) of the right circular cone? [Use $\pi = \frac{22}{7}$]

A. 660

B. 165

C. 495

D. 330 ✓

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

From the top of a platform 4 m high the angle of elevation of the top of a tower $50\sqrt{3}$ m away was measured. If the tower was 54 m high, what was the angle of elevation of the tower from the top of the platform?

A. 60^0

B. 30^0 ✓

C. 45^0

D. 75^0

Q2 Mathematics

Simplify the following expression:

$$\frac{15^3+20^3+25^3-22500}{15^2+20^2+25^2-300-500-375}$$

A. 75

B. 80

C. 50

D. 60 ✓

Q3 Mathematics

The value of $\frac{3}{4} \times 2\frac{2}{3} \div \frac{5}{9}$ of $1\frac{1}{5} - \frac{3}{5}$ of $(\frac{2}{3} \div \frac{2}{3}$ of $\frac{3}{2}) + \frac{4}{5} \times 1\frac{1}{9} \div \frac{8}{15} - \frac{2}{3}$ is:

A. $1\frac{3}{10}$

B. $3\frac{3}{5}$ ✓

C. $3\frac{9}{10}$

D. $4\frac{2}{5}$

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Q4 Mathematics

A football team lost 40% of the matches it played. If it won 75 matches, then find the number of matches it played.

A. 140

B. 110

C. 125 ✓

D. 130

Q5 Mathematics

What is the largest number that will divide both 288 and 468 without leaving any remainder?

A. 39

B. 36 ✓

C. 72

D. 18

Q6 Mathematics

The graphs of the equations $2x+3y = 4$ and $3x-y+5 = 0$, intersect at $P(\alpha, \beta)$. What is the value of $(3\alpha-4\beta)$?

A. 2

B. 11

C. -1

D. -11 ✓

Q7 Mathematics

A sum of ₹9200 was lent partly at 5% p.a. and the rest at 8% p.a., both earning simple interest. Total interest received after 3 years was ₹1812. The sum (in ₹) lent at 5% p.a. was

A. 5200

B. 4600

C. 4400 ✓

D. 4200

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Q8 Mathematics

What is the compound interest (in ₹) on a sum of ₹15600 at 20% p.a. for $2\frac{1}{4}$ years, the interest being compounded annually? [Give your answer correct to the nearest ₹.]

A. 7993

B. 7884

C. 7895

D. 7987 ✓

Q9 Mathematics

A field is in the shape of a rhombus whose side is 122 m. The length of one of its diagonals is 240 m. What is the area (in m^2) of the field?

A. 5280 ✓

B. 1320

C. 1760

D. 3080

Q10 Mathematics

If each of the observations of 14, 22, 16, 24, 12, 8, 4, 18, 12, 10 is increased by 10, then what will be their new mean?

A. 26

B. 24 ✓

C. 14

D. 16

Q11 Mathematics

If A can do a piece of work in 8 days, B can do it in 10 days and C can do it in 20 days., then in how many days can A, B and C together do the same work?

A. $2\frac{7}{11}$

B. 3

C. $3\frac{7}{11}$ ✓

D. 4

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Q12 Mathematics

Find the surface area (in dm^2) of a cuboid whose length is 4.2 m, breadth is 30 dm and height is 180 cm.

A. 4924

B. 5042

C. 5212

D. 5112 ✓

Q13 Mathematics

Arvind bought 120 m cloth for ₹15000. He sold 45% of it at a gain of 40%, 25% of it at a loss of 10% and the remaining cloth at the cost price. His profit (in ₹) in the entire transaction is

A. ₹2325 ✓

B. ₹2035

C. ₹4180

D. ₹4075

Q14 Mathematics

A pole is 405m long. It is painted in saffron, white and green colours one above the other in the ratio 8:9:10 respectively. What is the length of the white part of the pole (in meters)?

A. 140m

B. 130m

C. 120m

D. 135m ✓

Q15 Mathematics

What is the area ($in\ m^2$) of a circular path having a uniform width of 3m surrounding a circular field of diameter 150m?

A. 447π

B. 459π ✓

C. 456π

D. 453π

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Q16 Mathematics

P and Q together can complete a job in 20 days. Q and R together can complete the same job in 30 days. P and R together can complete the same job in 30 days. What is the respective ratio of the number of days taken by P when completing the same job alone to the number of days taken by R when completing the same job alone?

A. 1:2

B. 3:4

C. 2:3

D. 1:3 ✓

Q17 Mathematics

The altitude of an equilateral triangle is 12 cm. What is the perimeter of the triangle?

A. $30\sqrt{3}$ cm

B. $24\sqrt{3}$ cm ✓

C. 42 cm

D. $18\sqrt{3}$ cm

Q18 Mathematics

In an examination Sunita scored 90% of what Anita scored, while Anita's score was 110% of what Vinita scored. If Sunita scored 198 marks in the examination, how many marks did Vinita score?

A. 220

B. 180

C. 200 ✓

D. 242

Q19 Mathematics

The L.C.M. of two numbers is 252 and their H.C.F. is 14. If one of the numbers is 28, then by what percentage is the other number more than 28?

A. 340%

B. 310%

C. 330%

D. 350% ✓

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Q20 Mathematics

Let x be the median of the data: 16, 78, 26, 91, 29, 71, 31, 46, 9, 51, 54, 56, 61, 21, 62, 65, 73, 86, 41, 89. Let y be the median of the data obtained when 26 and 41 are replaced by 59 and 75, respectively, in the above data. What is the value of $(3x - 2y)$?

A. 38

B. 54

C. 49

D. 45 ✓

Q21 Mathematics

The curved surface area of a solid cylinder is $\frac{2}{3}$ of its total surface area. If the solid cylinder has a total surface area of 231 cm^2, then find the volume of the cylinder (in cm^3). (Use $\pi = \frac{22}{7}$)

A. 269.5 ✓

B. 348.2

C. 295.4

D. 264.8

Q22 Mathematics

By how much does $\frac{12}{\left(\frac{13}{14}\right)}$ exceed $\frac{\left(\frac{12}{13}\right)}{14}$?

A. $13\frac{1}{6}$

B. $13\frac{6}{7}$

C. $5\frac{5}{17}$

D. $12\frac{6}{7}$ ✓

Q23 Mathematics

The ratio of the radius of a sphere to the radius of a hemisphere is 4:5 respectively. The surface area of the sphere is what percentage more than the curved surface area of the hemisphere?

A. 26%

B. 25%

C. 28% ✓

D. 27%

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Q24 Mathematics

The value of the expression $43\frac{2}{3} \div \left[35 + \frac{3}{4} of 24 + \left(42 \div 7 - 5\frac{1}{3}\right)\right]$ is

A. $\frac{91}{161}$

B. $\frac{131}{161}$ ✓

C. $\frac{121}{161}$

D. $\frac{109}{161}$

Q25 Mathematics

A shopkeeper sells an article at 20% profit. If he had bought the article at 10% less and sold it at ₹18 more than the previous selling price, he would have made 40% profit. What is the original cost price of the article (in ₹)?

A. 350

B. 280

C. 300 ✓

D. 320

Q26 Mathematics

Δ RST is an obtuse isosceles triangle with $m\angle R = 16^0$ and $m(\overline{TR}) > m(\overline{ST})$. What is the measure of $\angle S$?

A. 164^0

B. 144^0

C. 148^0 ✓

D. 16^0

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Q27 Mathematics

A bus covers four successive 12km stretches at 20kmph, 40kmph, 60kmph and 120kmph respectively. Its average speed (in kmph) over this distance is :

A. 40 ✓

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

C. 50

D. $\frac{200}{9}$

Q28 Mathematics

Simplify the following expression:

$\sqrt{12.5 \times 8 \times 1.44}$

A. 12 ✓

B. 15

C. 10

D. 13

Q29 Mathematics

When the speed of a car is increased by 30%, it takes 24 minutes less to cover the same distance. What is the time taken by it to cover the same distance at its usual speed?

A. 1 hour 44 minutes ✓

B. 1 hour 55 minutes

C. 1 hour 50 minutes

D. 1 hour 40 minutes

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Q30 Mathematics

A sum of money invested at a certain rate of simple interest per annum amounts to ₹24500 in eight years and to ₹32000 in thirteen years. Find the sum invested.

A. ₹11500

B. ₹12000

C. ₹12500 ✓

D. ₹13000

Q31 Mathematics

A can complete a piece of work alone in 20 days, B can do it alone in 15 days and C can complete it alone in 18 days. B and C started the work together but both were forced to leave after 4 days. The remaining work was done by A in:

A. $10\frac{2}{9}$ days ✓

B. 12 days

C. $9\frac{2}{45}$ days

D. $14\frac{2}{45}$ days

Q32 Mathematics

Find the compound interest on ₹100000 at 20% per annum for 3 years 3 months, compounded annually.

A. ₹82360

B. ₹81440 ✓

C. ₹65000

D. ₹71650

Q33 Mathematics

Simplify the following expression:

$$(15 \div 3) - [\{(19 - 1) \div 2\} - \{5 \times 20 - (7 \times 9 - (-2))\}]$$

A. 21

B. 35

C. 31 ✓

D. -21

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Q34 Mathematics

Which one of the following numbers is divisible by 24?

A. 32192

B. 52182

C. 42192 ✓

D. 23152

Q35 Mathematics

The scores obtained by 10 students in a test are 82, 60, 62, 63, 78, 75, 86, 75, 91, 46.

Find the arithmetic mean of their scores.

A. 72.2

B. 70.6

C. 72.8

D. 71.8 ✓

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

Sheetal incurred 28% loss by selling an item for ₹207. What was the cost price of the item?

A. ₹292.50

B. ₹282.50

C. ₹277.50

D. ₹287.50 ✓

Q2 Mathematics

Find the total surface area (in m^2) of a right circular cone whose radius of base is 70 cm and perpendicular height is 240 cm. [Use $\pi = \frac{22}{7}$]

A. 7.04 ✓

B. 70400

C. 0.704

D. 704

Q3 Mathematics

For the classes 10-19, 20-29, 30-39, 40-49, 50-59, 60-69,70-79, 80-89 and 90-99 of a grouped data, which one of the following is the upper limit of the class interval 70-79

A. 69.5

B. 70

C. 79

D. 79.5 ✓

Q4 Mathematics

A and B together can do a piece of work in 30 days. Together with C they can complete the same work in 24 days. In how many days can C alone complete the same work?

A. 120 ✓

B. 96

C. 90

D. 150

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Q5 Mathematics

Simplify the following expression: $\frac{5.5^3-4^3}{30.25+22+16}$

- A. 1.5 ✓
- B. 14.25
- C. 9.5
- D. 0.75

Q6 Mathematics

Which of the quadratic equations below will not have real roots?

- A. $x^2 + 4x - 5 = 0$
- B. $x^2 + 4x + 4 = 0$
- C. $x^2 + 4x + 5 = 0$ ✓
- D. $x^2 + 4x - 4 = 0$

Q7 Mathematics

In measuring the sides of a rectangle error of 10% and 8% in excess are made. Find the error percent in its area.

- A. 1.88
- B. 188
- C. 18.8 ✓
- D. 0.188

Q8 Mathematics

The ratio of the speeds of A and B is 4:5 and hence A takes 20minutes more than the time taken by B to reach the destination. If A had walked at double his speed, he would have covered the distance in :

- A. 80min
- B. 50min ✓
- C. 100min
- D. 40min

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Q9 Mathematics

Five bells commence tolling together and toll at intervals of 3, 6, 12, 15 and 18 seconds respectively. They tolled at 9:58:45 hours then at which time they will again toll together?

A. 10:01:15

B. 10:01:45 ✓

C. 10:02:45

D. 10:00:15

Q10 Mathematics

Consider a sequence of seven consecutive numbers. If the average of the first five numbers is 'z', then find the average of the last three numbers.

A. z+3 ✓

B. z+5

C. z+7

D. z+1

Q11 Mathematics

A contractor undertakes to complete a work in 250 days. He employs 300 workers for 50 days and they complete $\frac{1}{2}$ of the work. He then reduces the number of workers to 100, who work for 120 days, after which there are 20 days of holidays. How many workers must be employed after holidays for the remaining period to complete the work on time?

A. 68

B. 74

C. 80

D. 50 ✓

Q12 Mathematics

If each side of a square is increased by 50%, then what is the percentage change in its area?

A. 125% ✓

B. 110%

C. 75%

D. 90%

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Q13 Mathematics

Find the value of k, if k% of 280 = 50% of 350

A. 60

B. 75

C. 62.5 ✓

D. 72.5

Q14 Mathematics

Find the volume of a cylinder (in cm^3) if its area of the base is 1,386 cm^2 and its height is 30 cm.

A. 41850

B. 45810

C. 40815

D. 41580 ✓

Q15 Mathematics

Which of the following fractions is the largest?

$\frac{7}{9}, \frac{6}{7}, \frac{22}{25}$, and $\frac{11}{13}$

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

B. $\frac{22}{25}$ ✓

C. $\frac{11}{13}$

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

Q16 Mathematics

What is the compound interest (in ₹) on a sum of ₹31600 for $1\frac{1}{3}$ years at 9% p.a., when the interest is compounded 8-monthly? (Nearest to a ₹)

A. 3906 ✓

B. 3928

C. 3916

D. 3896

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Q17 Mathematics

A person bought articles A and B for a total of ₹ 2312. He sold A at a loss of 16% and sold B at a gain of 20%. The selling prices of A and B were the same. What was the difference between the cost prices of A and B?

A. ₹ 416

B. ₹ 428

C. ₹ 420

D. ₹ 408 ✓

Q18 Mathematics

If 13.5 kg of grapes cost ₹681.75, find the cost of 12 kg of grapes.

A. ₹610.00

B. ₹612.00

C. ₹606.00 ✓

D. ₹603.00

Q19 Mathematics

If $x+\frac{1}{x}=4$, then find the value of the following:

$$\frac{4x^2+4}{9x^2+10x+9}$$

A. $\frac{8}{22}$

B. 1

C. $\frac{4}{9}$

D. $\frac{8}{23}$ ✓

Q20 Mathematics

Akshita covers a distance of 300 km at the speed of 50km/h, then 360km at 30km/h and another 420km at 60km/h. If her average speed for the whole journey is k km/h, then how much time (in hours) will she take to cover 216 km at k km/h?

A. 6 hours

B. 7 hours

C. 4 hours

D. 5 hours ✓

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Q21 Mathematics

ABCD is a cyclic quadrilateral whose side AB is a diameter of the circle through A, B, C and D. If ∠ADC = 129°, then what is the measure of ∠BAC?

A. $51°$

B. $49°$

C. $39°$ ✓

D. $41°$

Q22 Mathematics

Simplify the following:

$$\frac{10-\left[\frac{3}{4}+\left\{4\frac{1}{2}-\left(\frac{1}{4}+\frac{1}{84}\right)\right\}\right]}{4}=?$$

A. $2\frac{85}{336}$

B. $4\frac{85}{336}$

C. $3\frac{85}{336}$

D. $1\frac{85}{336}$ ✓

Q23 Mathematics

A part of ₹55,800 was invested in Scheme A for 2 years at 20% per annum compound interest, compounded annually, and the rest of the money was invested in Scheme B at 20% per annum simple interest for 4 years. Both the schemes earned equal interests. How much was invested in Scheme A?

A. ₹40100

B. ₹28300

C. ₹36000 ✓

D. ₹32400

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Q24 Mathematics

The area of a trapezium is 1792 cm² and the perpendicular distance between its parallel sides is 28 cm. If the length of one of the parallel sides is 72 cm, then find the length of the other side.

A. 64 cm

B. 48 cm

C. 84 cm

D. 56 cm ✓

Q25 Mathematics

Simplify the following expression:

$$\frac{\frac{17}{2} \div \frac{15}{2} \times \frac{13}{2}}{\frac{17}{2} \div \left(\frac{15}{2} \times \frac{13}{2}\right)} \div \frac{169}{30}$$

A. 7

B. $7\frac{1}{2}$ ✓

C. 6

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

Q26 Mathematics

If $cosec\,\theta \times tan\,\theta = \frac{2}{\sqrt{3}}$, and θ is an acute angle, then find the value of θ.

A. 45°

B. 30° ✓

C. 60°

D. 90°

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Q27 Mathematics

Find the mode of the following data.

15, 26, 15, 29, 19, 18, 19, 15, 24, 23, 15, 19

A. 15 ✓

B. 19

C. 26

D. 29

Q28 Mathematics

If each packet contains the same number of pencils and there are 96 pencils in all in 12 packets, how many packets will one have to purchase if one requires 304 pencils?

A. 33

B. 36

C. 38 ✓

D. 39

Q29 Mathematics

A 360 m train crosses an electric pole in 12 seconds. Find the time (in seconds) taken by the train to cross a 150 m long bridge.

A. 17 ✓

B. 24

C. 21

D. 18

Q30 Mathematics

Two poles are on either side of a road. A 20m long ladder is placed between the two poles. When the ladder rests against one pole, it makes an angle of 60^0 with the pole and when it is turned to rest against the other pole, it makes an angle of 30° with the road. Calculate the width of the road. (in m) (Use $\sqrt{3}=1.732$)

A. 3.464

B. 34.64 ✓

C. 0.3264

D. 32.64

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Q31 Mathematics

Find the simple interest on ₹48750 at 16% per annum for 73 days of a non-leap year.

A. ₹1560 ✓

B. ₹1500

C. ₹1860

D. ₹1600

Q32 Mathematics

The number of students in grades 10, 11 and 12 of a school are 384, 256 and 480 respectively. All students were divided into different groups, with no group having students from more than one grade. What is the minimum number of groups that would be formed if all the groups have the same number of students?

A. 30

B. 36

C. 35 ✓

D. 32

Q33 Mathematics

Which of the numbers below is not divisible by 15?

A. 234675

B. 123465

C. 384575 ✓

D. 234570

Q34 Mathematics

The length of a diagonal of a square is 18 cm. What is the perimeter of the square?

A. $36\sqrt{2}$ cm ✓

B. $72\sqrt{2}$ cm

C. 36 cm

D. 72 cm

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Q35 Mathematics

There are 12 numbers arranged in ascending order. If the mean of the last 11 numbers is 9 and the mean of all the 12 numbers is 11, then find the value of the second number, which is $66\frac{2}{3}$ % more than the first number.

A. 53

B. 54

C. 55 ✓

D. 56

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

The diagonal of a rectangular plot is 37m and its area is 420 m^2 . What is the cost of fencing the plot at ₹37.50 per metre?

A. ₹3600

B. ₹3675

C. ₹3750

D. ₹3525 ✓

Q2 Mathematics

Find the value of

$$\frac{32}{46} \times \frac{94}{576} \times \frac{184}{282}$$

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

B. $\frac{27}{2}$

C. $\frac{2}{9}$

D. $\frac{2}{27}$ ✓

Q3 Mathematics

Let $0° < \theta < 90°$. Then $\frac{cot\theta - 1}{1 - tan\theta} \div \left(\frac{sin\theta}{1+cos\theta} + \frac{1+cos\theta}{sin\theta}\right)$ is equal to:

A. $\frac{cos\theta}{2}$ ✓

B. $sin\theta$

C. $cos\theta$

D. $\frac{sec\theta}{2}$

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Q4 Mathematics

Find the greatest possible number which on dividing 2307 and 3105 leaves remainders of 7 and 5 respectively.

A. 105

B. 102

C. 100 ✓

D. 110

Q5 Mathematics

Pipes A and B can fill an empty tank completely in 42 minutes and 56 minutes respectively. Pipe C alone can empty the full tank in 84 minutes. All the three pipes are opened together for 8 minutes and then C is closed. In how much time (in minutes) will A and B together fill the remaining part of the tank?

A. $18\frac{2}{7}$ ✓

B. 18

C. $17\frac{1}{7}$

D. 16

Q6 Mathematics

The straight line $kx - 3y = 6$ passes through the point (3, 2). What is the value of k?

A. 2

B. 4 ✓

C. 3

D. 6

Q7 Mathematics

A train travelling at 72 km/h crosses a post in 12 seconds. What is the length of the train?

A. 225 m

B. 200 m

C. 240 m ✓

D. 180 m

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Q8 Mathematics

x and y are in direct proportion and $y = 92.5$ when $x = 37$. What will be the value of y when $x = 16$?

A. 32

B. 24

C. 48

D. 40 ✓

Q9 Mathematics

The positive value of

$$\frac{1}{1+\sqrt{2}} + \frac{1}{\sqrt{2}+\sqrt{3}} + \frac{1}{\sqrt{3}+\sqrt{4}} + \cdots + \frac{1}{\sqrt{15}+\sqrt{16}} \text{ is}$$

A. 3 ✓

B. 2

C. 1

D. 4

Q10 Mathematics

What will be the median of all the prime numbers between 20 and 62?

A. 38

B. 41

C. 42 ✓

D. 39

Q11 Mathematics

What will be the interest on ₹6250 for 3 years if interest accrues at 12% simple interest per annum?

A. ₹2450

B. ₹2150

C. ₹2250 ✓

D. ₹2050

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Q12 Mathematics

The circumference of the base of a right circular cylinder is 176 cm and its height is 12 cm. Find the total surface area (in cm^2) of the cylinder. (Use $\pi = \frac{22}{7}$)

A. 7064

B. 7640

C. 7040 ✓

D. 7460

Q13 Mathematics

The area of a rhombus is 440 cm^2. If the length of one of its diagonals is 20 cm, then what is the length of its other diagonal?

A. 11 cm

B. 44 cm ✓

C. 88 cm

D. 22 cm

Q14 Mathematics

A person invested some amount at the rate of 12% per annum simple interest and another amount at the rate of 10% per annum simple interest. He received yearly interest of ₹125 from both the investments. But if he had interchanged the amounts invested, he would have received ₹3 more as interest. How much did he invest at 10% per annum simple interest originally?

A. ₹500

B. ₹700

C. ₹600

D. ₹650 ✓

Q15 Mathematics

If a positive integer n is divided by 7, then the remainder is 3. Which of the following numbers yields a remainder of 0 when it is divided by 7?

A. $n + 5$

B. $n + 4$ ✓

C. $n + 3$

D. $n + 2$

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Q16 Mathematics

The radius of a cylinder is $16\frac{2}{3}$ % more than the radius of a hemisphere. The height of the cylinder is 21 cm. Find the volume of the hemisphere if the volume of the cylinder is equal to the volume of another sphere having radius 7 cm. (Calculate to two decimal places; use $\pi = \frac{22}{7}$)

A. $136.09\ cm^3$

B. $133.04\ cm^3$

C. $132.08\ cm^3$

D. $134.10\ cm^3$ ✓

Q17 Mathematics

A vendor sells 15 lemons for 3 rupees gaining 60%. How many did he buy for a rupee?

A. 9

B. 7

C. 10

D. 8 ✓

Q18 Mathematics

What will be value of

$$\frac{1}{0.0001191}, if\ \frac{1}{11.91} = 0.083963$$

A. $10^6 \times 0.083963$

B. $10^4 \times 0.083963$

C. $10^5 \times 0.083963$ ✓

D. $10^7 \times 0.083963$

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Q19 Mathematics

The value of $\frac{(34.2\times6.84)\div(102.6\times0.00171)}{(12.5\times0.8)\div0.03}$ is

A. 0.004

B. 0.4

C. 4 ✓

D. 0.04

Q20 Mathematics

What should come in place of p in the following equation.

43240 -30608= p × 160

A. 78.59

B. 78.95 ✓

C. 75.89

D. 79.85

Q21 Mathematics

Find the circumference of a circle whose diameter is 30 cm long. [Use $\pi = 3.14$]

A. 141.3 cm

B. 47.1 cm

C. 94.2 cm ✓

D. 188.4 cm

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Q22 Mathematics

Calculate the value of $\frac{\text{Range}}{\text{Median}}$ for the set of data given below:

134, 98, 194, 122, 108, 156

A. $\frac{48}{67}$

B. $\frac{48}{61}$

C. $\frac{8}{9}$

D. $\frac{3}{4}$ ✓

Q23 Mathematics

If the radius and the height of a cylinder are 0.2m and 0.7m respectively, then find its curved surface area. [Use $\pi = \frac{22}{7}$]

A. $0.8\ m^2$

B. $0.88\ m^2$ ✓

C. $8.8\ m^2$

D. $88\ m^2$

Q24 Mathematics

Excluding stoppages, the speed of a bus is 45 kmph and including stoppages, it is 27 kmph. For how many minutes does the bus stop per hour?

A. 20 mins

B. 36 mins

C. 40 mins

D. 24 mins ✓

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Q25 Mathematics

Two students appeared for an entrance examination. One of them secured 15 marks more than the other and his marks are 80% of the sum of their marks. What are the marks obtained by each of them?

A. 4 and 19

B. 8 and 23

C. 5 and 20 ✓

D. 6 and 21

Q26 Mathematics

Simplify the following expression:

$$2\frac{1}{6} \times \{1\frac{19}{26} + \frac{15}{13} \times (\frac{5}{7} \div \frac{25}{14})\}$$

A. $4\frac{2}{3}$

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

C. $4\frac{3}{4}$ ✓

D. $4\frac{5}{6}$

Q27 Mathematics

Radhika can complete a work in 15 days and Rishi can complete the same work in 30 days. Radhika started the work alone and left after 2 days of work. Then Rishi continued the work. Find the time taken by Rishi to complete the remaining work.

A. 25 days

B. 24 days

C. 26 days ✓

D. 23 days

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Q28 Mathematics

Simplify the following expression:

$10 - 18 \div 3 \times 3 + 27 \div 3^2$

A. -11

B. $2\frac{1}{9}$

C. -5 ✓

D. 11

Q29 Mathematics

Two equal circles, each having a radius of 24 cm, intersect each other, such that each passes through the centre of the other. The length of the common chord is _____ cm.

A. $36\sqrt{3}$

B. $36\sqrt{2}$

C. $30\sqrt{3}$

D. $24\sqrt{3}$ ✓

Q30 Mathematics

If ₹5000 is invested for a period of three years at 20% compound interest per annum, compounded annually, what will be the amount received after 3 years?

A. ₹8680

B. ₹8000

C. ₹8480

D. ₹8640 ✓

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Q31 Mathematics

Two trains start at the same time from two stations and proceed towards each other at 30 km/h and 35 km/h, respectively. When they meet, it is found that one train has covered 30 km more than the other. Find the distance between the two stations.

A. 390 km ✓

B. 410 km

C. 380 km

D. 400 km

Q32 Mathematics

If the mean of 14, 6, 2a and 16 is 12, then find the value of a where $a > 0$.

A. 5

B. 8

C. 4

D. 6 ✓

Q33 Mathematics

If 24% of a number is 39, then what is the number?

A. 161.5

B. 163.5

C. 160.5

D. 162.5 ✓

Q34 Mathematics

12 skilled, 14 semi-killed and 10 unskilled workers complete a job for ₹13189. If their individual wages be in the ratio of 9:5:4, then the total money (in ₹) earned by 10 unskilled workers is:

A. 3240

B. 3420

C. 2420 ✓

D. 2240

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Q35 Mathematics

If $1\frac{1}{4} \times (5\frac{3}{4} \div \frac{2}{7}\ of\ k) \div 2\frac{7}{8} - 3\frac{3}{4} = (17-4) \div 2$ of 2, then what is the value of $\frac{k+1}{k-1}$?

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

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

C. 7

D. 9 ✓

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

Which of the following numbers is divisible by 7, 11 and 13?

A. 1004001

B. 1005001

C. 1002001 ✓

D. 1003001

Q2 Mathematics

The value of $(1\frac{1}{3} \times 1\frac{4}{5} \div \frac{3}{5}) \times \frac{3}{8} - \frac{2}{3}$ is:

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

B. $\frac{5}{6}$ ✓

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

D. $\frac{7}{2}$

Q3 Mathematics

In a circle, chords AB and CD are produced to meet at E, outside the circle. If AB = 9 cm and AE = 12 cm and ED = 4 cm, then what is the length of the chord CD?

A. 4.5 cm

B. 4 cm

C. 5 cm ✓

D. 5.5 cm

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Q4 Mathematics

A can complete a piece of work in 10 days. B is 25% more efficient than A. How many days will B alone take to complete the same work?

A. 7 days

B. 8 days ✓

C. 9 days

D. 6 days

Q5 Mathematics

X and Y can complete a certain work in 45 days and 60 days, respectively. They started the work together but X left after some days and Y alone completed the remaining work in 39 days. For how many days did X work?

A. 10 days

B. 8 days

C. 9 days ✓

D. 6 days

Q6 Mathematics

What is the sum of the solutions of the equation $2y^2 - 6y - 7 = 0$?

A. $\frac{7}{2}$

B. $-\frac{7}{2}$

C. 3 ✓

D. –3

Q7 Mathematics

When 6892, 7105 and 7531 are divided by the greatest number x, then the remainder in each case is the same. The sum of the digits of x is:

A. 6 ✓

B. 7

C. 13

D. 9

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Q8 Mathematics

If $A : B = 1.2 : 2, B : C = 1.5 : 2, and\ C : D = 2 : 3, then\ B : D$ is equal to:

A. $1 : 2$ ✓

B. $3 : 4$

C. $2 : 3$

D. $5 : 6$

Q9 Mathematics

The value of $72 \div 4 \times \{8 \times 4 - (14 - 19)\}$ is:

A. 222

B. 1296

C. 444

D. 666 ✓

Q10 Mathematics

The difference between 12% gain and 4% loss on sale of the item was ₹28. What was the cost price of the item?

A. ₹175 ✓

B. ₹168

C. ₹189

D. ₹196

Q11 Mathematics

If $x = 2^3 \times 3^2 \times 5 \times 7^3$, $y = 2^2 \times 3^3 \times 5^2 \times 7^2$, and $z = 2^4 \times 3 \times 5^3 \times 7$,

then the HCF of x, y and z is:

A. 420 ✓

B. 1260

C. 630

D. 840

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Q12 Mathematics

If $\sqrt{64} - \sqrt[3]{64} = \sqrt[4]{y}$, where $y > 0$, then the value of y is:

A. 625

B. 81

C. 256 ✓

D. 16

Q13 Mathematics

Determine the number of months required to get ₹25.5 as simple interest on ₹850 at 3.6% per annum.

A. 11 months

B. 9 months

C. 8 months

D. 10 months ✓

Q14 Mathematics

The selling price of 2 blankets are the same. One of the blankets is sold at $66\frac{2}{3}\%$ profit and the CP of the other blanket is ₹400 less than its SP. If the total profit on selling both the blankets is 50%, then find the selling price of each blanket.

A. ₹ 1520

B. ₹ 1510

C. ₹ 1500 ✓

D. ₹ 1530

Q15 Mathematics

A lawn in the shape of a rectangle has an area of 7260 m^2 and its sides are in the ratio 5 : 3. Its perimeter is equal to the perimeter of a circular garden. What is the area of the circular garden? $\left(Take\ \pi = \frac{22}{7}\right)$

A. 8712 m^2

B. 7260 m^2

C. 9878 m^2

D. 9856 m^2 ✓

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Q16 Mathematics

What is the mode of the observations 5, 4, 4, 6, 7, 6, 9, 7, 6, 5?

A. 5

B. 6 ✓

C. 7

D. 4

Q17 Mathematics

The ratio of incomes of A and B is 5 : 7 and the ratio of their savings is 2 : 3. If A and B spend ₹35,400 and ₹48,600, respectively, then what is the difference (in ₹) between the incomes of B and A?

A. 18,000 ✓

B. 20,000

C. 17,600

D. 18,600

Q18 Mathematics

The volume of a solid cone is $96\ \pi\ cm^3$ and its height is 8cm. What is its total surface area (in cm^2)?

A. $96\ \pi$ ✓

B. $36\ \pi$

C. $37\ \pi$

D. $23\ \pi$

Q19 Mathematics

A hundred rupee note measures 15 cm × 8 cm and a bundle of 125 such notes is 2 cm thick. Find the value of the hundred-rupee notes that can be contained in a box of size 48 cm × 36 cm × 30 cm, if the bundles are tightly packed in it without any empty space.

A. ₹30 Lakhs

B. ₹27 Lakhs ✓

C. ₹36 Lakhs

D. ₹33 Lakhs

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Q20 Mathematics

The value of $(919 + 9.019 + 0.919 + 9.0019)$ is:

A. 973.9399

B. 973.9939

C. 937.3999

D. 937.9399 ✓

Q21 Mathematics

If 75% of a number is added to 75, then the result is the number itself. The number is:

A. 300 ✓

B. 250

C. 350

D. 200

Q22 Mathematics

In a school, $\frac{5}{8}$ of the number of students are girls and the rest are boys. $\frac{2}{5}$ of the number of girls are below 12 years of age and $\frac{4}{9}$ of the boys are 12 years of age or above. If the total number of students is 288, how many students are below 12 years of age?

A. 140

B. 124

C. 144

D. 132 ✓

Q23 Mathematics

The area of a rectangular field, whose sides are in the ratio $13 : 5$, is $260\ m^2$. What is the perimeter of the rectangular field?

A. 70 m

B. 72 m ✓

C. 66 m

D. 68 m

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Q24 Mathematics

A boat takes 7 hours to move 63 km downstream and 30 km upstream. The boat takes 6 hours to move 28 km downstream and 48 km upstream. How much time will it take to move 35 km downstream and 27 km upstream?

A. 5 hours 20 minutes

B. 4 hours 50 minutes

C. 5 hours

D. 4 hours 45 minutes ✓

Q25 Mathematics

At the same time A and B start moving towards each other from two different places, 240 km apart. The ratio of the speeds of A and B is 5 : 7, and the speed of B is 84 km/h. After how many minutes will A and B meet each other?

A. 100 minutes ✓

B. 80 minutes

C. 120 minutes

D. 90 minutes

Q26 Mathematics

Raju travels 150 km in 7.5 hours moving downstream. The speed of the stream is 5 km/h. Find the speed with which Raju should row the boat to reach back in the same time.

A. 7.5 km/h

B. 18 km/h

C. 10 km/h

D. 25 km/h ✓

Q27 Mathematics

The average of 6 numbers is 16. If one of the numbers is excluded, the average becomes 17. Find the excluded number.

A. 10

B. 11 ✓

C. 13

D. 12

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Q28 Mathematics

A fraction becomes $\frac{2}{3}$ when one is added to both the numerator and the denominator of the fraction, and it becomes $\frac{1}{2}$, when 2 is subtracted from both the numerator and denominator. What is the sum of the numerator and denominator of the original fraction?

A. 13 ✓

B. 8

C. 11

D. 7

Q29 Mathematics

A cylindrical bucket of height 150 cm and radius 50 cm is full of water. A person wants to fill spherical balloons of radius 5 cm each with the water in the bucket. How many balloons can he fill completely with the water present in the bucket?

A. 2250 ✓

B. 1753

C. 1832

D. 1456

Q30 Mathematics

What is the compound interest on a sum of ₹19,500 invested for $1\frac{2}{5}$ years at 10% p.a., interest compounded annually?

A. ₹2,608

B. ₹2,808 ✓

C. ₹2,480

D. ₹2,880

Q31 Mathematics

The ratio of the two numbers is 3 : 4 and their LCM is 480. Find their HCF.

A. 30

B. 160

C. 120

D. 40 ✓

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Q32 Mathematics

Khan lends an amount of ₹10,000 to Irfan at 10% per annum compound interest for 5 years, compounded annually. What is the compound interest accrued for the 4^{th} year?

A. ₹1,331 ✓

B. ₹1,762

C. ₹1,745

D. ₹1,540

Q33 Mathematics

In ΔABC, the bisectors of $\angle B$ and $\angle C$ intersect at P inside the triangle. If $\angle BPC = 128°$, then what is the measure of $\angle A$?

A. $52°$

B. $78°$

C. $82°$

D. $76°$ ✓

Q34 Mathematics

The value of $84 \div 32 \times 8 - 15 \div 8 \times (19 - 35)$ is:

A. 51 ✓

B. 42

C. 45

D. 38

Q35 Mathematics

If the difference between the mode and median is 2, then find the difference between the median and mean (in the given order) using empirical relation.

A. 3

B. 2

C. 1 ✓

D. 4

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

Let x be the least four-digit number which when divided by 18, 27, 30, 40 and 45, the remainder in each case is 9. Find the remainder when x is divided by 37.

A. 28

B. 23

C. 16 ✓

D. 15

Q2 Mathematics

The marks obtained by A in a test are 20% more than the marks obtained by B, and C obtained 85% of the total marks obtained by A and B. By what percentage are the marks obtained by A less than the marks obtained by C? (Correct to one decimal place)

A. 34.6%

B. 37.2%

C. 55.8%

D. 35.8% ✓

Q3 Mathematics

A sum of money is distributed by a father among his 4 sons A, B, C, D in the ratio 3 : 6 : 8 : 5. After the distribution, it has been observed that the amount of money that C received is ₹1,000 more than what B received. What is the total amount of money that has been distributed among the four?

A. ₹12,450

B. ₹12,000

C. ₹11,000 ✓

D. ₹13,000

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Q4 Mathematics

Which of the following values can replace K in $7\frac{3}{5} \times 4\frac{1}{2} - K = 26\frac{3}{4}$?

A. 2

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

C. $9\frac{7}{20}$

D. $7\frac{9}{20}$ ✓

Q5 Mathematics

The sum of the ages of 5 children born at an interval of 5 years each, is 80. What is the age of the youngest child?

A. 16 years

B. 6 years ✓

C. 4 years

D. 21 years

Q6 Mathematics

The bisector of $\angle QPR$ of ΔPQR meets the side QR at S. If PQ = 12 cm, PR = 15 cm and QR =18 cm, then the length of SR is

A. 13 cm

B. 8 cm

C. 12 cm

D. 10 cm ✓

Q7 Mathematics

If the 9-digit number $83x93678y$ is divisible by 72, then what is the value of $(3x - 2y)$?

A. 12

B. 10 ✓

C. 15

D. 8

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Q8 Mathematics

Simplify $\frac{7+3\sqrt{5}}{3+\sqrt{5}} + \frac{7-3\sqrt{5}}{3-\sqrt{5}}$.

A. 4

B. 3 ✓

C. 6

D. 14

Q9 Mathematics

The height of the frustum of a cone is 8 cm. The radius on the top of the frustum is 6 cm and the bottom of the frustum is 12 cm. What is the curved surface area of the frustum?

A. 240π cm^2

B. 36π cm^2

C. 180π cm^2 ✓

D. 360π cm^2

Q10 Mathematics

In an office, the number of male employees is $\frac{3}{8}$ of the number of female employees. $\frac{1}{3}$ of the males are non-graduates, whereas $\frac{4}{9}$ of the females are non-graduates. If the number of non-graduate employees in the office is 164, then the total number of employees in the office is:

A. 396 ✓

B. 288

C. 414

D. 360

Q11 Mathematics

Four friends P, Q, R and S run around a circular track of length 400 m starting at the same point at the same time at speeds of 4, 8, 16 and 20 m/s, respectively. If all of them are moving in the same direction, after how much time would they meet for the first time?

A. 100 s ✓

B. 145 s

C. 90 s

D. 120 s

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Q12 Mathematics

A can do a piece of work in 24 days and B can do $\frac{2}{5}$ of the same work in 12 days. Both work together for 6 days. How much work is still left?

A. $\frac{13}{20}$

B. $\frac{9}{20}$

C. $\frac{17}{20}$

D. $\frac{11}{20}$ ✓

Q13 Mathematics

A train crosses a one km long bridge in one minute and a 750 m long tunnel in 50 seconds. Assuming the train is running at a uniform speed, what is its speed?

A. 81 km/h

B. 108 km/h

C. 90 km/h ✓

D. 72 km/h

Q14 Mathematics

Kiran lent ₹40,000 to Kishore on compound interest for 2 years, compounded annually. The rate to interest is 20%. What is the Compound Interest that Kiran will receive after 2 years?

A. ₹17,600 ✓

B. ₹16,780

C. ₹12,350

D. ₹14,560

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Q15 Mathematics

A and B together can complete a piece of work in 36 days while B and C together can do it in 20 days. The efficiency of C is thrice the efficiency of A. B alone can complete two-third of the original work in

A. 40 days ✓

B. 30 days

C. 36 days

D. 45 days

Q16 Mathematics

A family's monthly income is ₹45,000. Out of the monthly income 20% is spent on food, 20% is spent on the house rent, 5% is spent on shopping, 10% is spent on personal expenses and the rest is saved. If they decided to donate 12% of the monthly savings to the poor, what is the amount that they donate to the poor?

A. ₹3500

B. ₹3230

C. ₹2430 ✓

D. ₹2750

Q17 Mathematics

Find the volume of a cylinder whose base radius is 12.5 cm and whose height is $\frac{4}{5}$ of the base radius.

A. $1250\ \pi\ cm^3$

B. $2441.4\ \pi\ cm^3$

C. $1652.5\ \pi\ cm^3$

D. $1562.5\ \pi\ cm^3$ ✓

Q18 Mathematics

A certain sum amounts to ₹16,500 in 2 years at 5% p. a. simple interest. Find the sum.

A. ₹15,000 ✓

B. ₹14,500

C. ₹14,000

D. ₹15,500

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Q19 Mathematics

Find the reciprocal of the sum of the reciprocals of the numbers. $\frac{1}{4}, \frac{4}{3}, \frac{5}{7}, \frac{5}{4}, \frac{8}{5}$

A. $\frac{22}{23}$

B. $\frac{40}{303}$ ✓

C. $\frac{23}{22}$

D. $\frac{607}{120}$

Q20 Mathematics

A sum of ₹400 lent at compound interest amounts to ₹484 in 2 years, interest compounded yearly. What is the rate of interest p.a.?

A. 12%

B. 16%

C. 11%

D. 10% ✓

Q21 Mathematics

The HCF of two numbers is 8 and the product of the two numbers is 6400. How many pairs of numbers exist, which satisfy the above conditions?

A. 6

B. 5

C. 3

D. 2 ✓

Q22 Mathematics

A train passes a man, going in opposite direction, in 12 seconds and the speed of the man is 10 km/ h. If the speed of the train is 62 km /h, then what is the length (in m) of the train?

A. 240 ✓

B. 220

C. 250

D. 200

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Q23 Mathematics

Two chords AB and CD of a circle intersect at point F inside the circle. If AF = 4 cm, BF = 6 cm and CF = 3 cm, then find the length of CD.

A. 8 cm

B. 11 cm ✓

C. 12 cm

D. 16 cm

Q24 Mathematics

If $\left[2\frac{7}{8} - \left\{3 - \left(1\frac{1}{4} - \frac{5}{8}\right)\right\}\right] + P \times \frac{1}{8} = 0$, then what is the value of P?

A. -4 ✓

B. 2

C. -2

D. 4

Q25 Mathematics

The area of a rectangle is 2430 cm^2 and its width is 9 cm less than its length. Find the perimeter of the rectangle.

A. 198 cm ✓

B. 192 cm

C. 180 cm

D. 216 cm

Q26 Mathematics

A field is in the shape of a rhombus, whose perimeter is 292 m and one of its diagonals is 96 m. What is the area of the field?

A. 4800 m^2

B. 5280 m^2 ✓

C. 5040 m^2

D. 7008 m^2

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Q27 Mathematics

Manu purchased an old bike for ₹5,500, spent 12% of this amount on repairs, and had to later sell it at an overall loss of 5%. What was the price at which Manu sold the bike?

A. ₹5,882

B. ₹5,872

C. ₹5,852 ✓

D. ₹5,832

Q28 Mathematics

The average of 38 numbers is 51. The average of the first 24 numbers is 45, and that of the last 5 numbers is 60. What is the average of the remaining numbers?

A. 61

B. 59

C. 62 ✓

D. 60

Q29 Mathematics

A 3200 m long **cylindrical** copper wire of radius 0.3 mm is melted and recast into a sphere (without wasting any material). What is the surface area (in cm^2) of the sphere?

A. 256π

B. 144π ✓

C. 198π

D. 140π

Q30 Mathematics

A jar contains a mixture of two liquids A and B in the ratio 3 : 4. If 5 litres of liquid A is added into the jar, then their respective ratio becomes 4 : 5. The quantity of liquid B contained in the jar is:

A. 75 litres

B. 100 litres ✓

C. 80 litres

D. 90 litres

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Q31 Mathematics

If $3\cos^2\theta + 1 = 4sin\theta, 0° < \theta < 90°$, then the value of $\sec^2\theta$ is:

A. $\frac{9}{5}$ ✓

B. $\frac{5}{9}$

C. $\frac{5}{4}$

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

Q32 Mathematics

Simplify:

$\sqrt[4]{1296^3}$

A. 512

B. 288

C. 216 ✓

D. 864

Q33 Mathematics

In a division involving decimal fractions, the divisor is 22.8 and the quotient is 8.5, while the remainder is 0. What is the dividend?

A. 193.4

B. 193.8 ✓

C. 193.2

D. 193.6

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Q34 Mathematics

Five years ago, the average age of A, B and C was 17 years. Seven years ago, the average age of A and B was $17\frac{1}{2}$ years. What will be the age (in years) of C after 2 years from now?

A. 20

B. 19 ✓

C. $20\frac{1}{2}$

D. $18\frac{1}{2}$

Q35 Mathematics

If the ratio of the mode and median is 13 : 9, then find the ratio of the mean and mode using empirical relation.

A. 9 : 8

B. 8 : 9

C. 7 : 13 ✓

D. 8 : 13

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

Rakesh secured 92% in a test and Kiran secured 96% in the same test. If the test is conducted out of 375 marks, what is the sum of the marks secured by both Rakesh and Kiran?

A. 705 ✓

B. 700

C. 720

D. 715

Q2 Mathematics

Ravi travels from City A to City B and from City B to City A in 4 hours. If the average speed of the total journey is 68.3 km/h, what is the distance between City A and City B?

A. 136.6 km ✓

B. 273.2 km

C. 197.6 km

D. 152.7 km

Q3 Mathematics

The value of $5\sqrt{12} + 6\sqrt{27} - 4\sqrt{75} + \sqrt{192}$ is:

A. $22\sqrt{3}$

B. $16\sqrt{3}$ ✓

C. $18\sqrt{3}$

D. $20\sqrt{3}$

Q4 Mathematics

What is the value of $\frac{9}{15} \times \frac{45}{81}\left\{\frac{49}{6} \times \left(\frac{16}{7} - 2\right) \times \frac{24}{5} \times \frac{15}{16}\right\}$?

A. 6.5

B. 3.5 ✓

C. 7.5

D. 4.5

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Q5 Mathematics

{1, 4, 7, 12, 13, 10, 11, 0, 0, 18, 37, 33, 29, 27, 16, 25, 28, 17, 19}

What are the Mean, the Median and the Mode of the above set of data, in the same order, corrected to two decimal places?

A. 0, 16, 16.16

B. 16, 16.16, 0

C. 16.16, 16, 0 ✓

D. 16, 0, 16.16

Q6 Mathematics

ABC is an isosceles triangle in which AB = AC and $\angle BAC = 50°$. Side BC is extended to D. Find the measure of $\angle ACD$.

A. $100°$

B. $130°$

C. $110°$

D. $115°$ ✓

Q7 Mathematics

Find the HCF of

$(a - b)(a + 2b), (a^2 - b^2)(a + 2b), (a + b)(a^2 - b^2)$, where a > b > 0

A. $a + b$

B. $a + 2b$

C. $a - 2b$

D. $a - b$ ✓

Q8 Mathematics

Madhvi started her journey at 9:25 am and covered 24% of the distance by 9:39:24 am. At what time will she reach her destination if she continues at the same speed?

A. 10:25 am ✓

B. 10:20 am

C. 10:15 am

D. 10:30 am

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Q9 Mathematics

What would be the interest payable on a sum of ₹15,000 after 2 years if the interest is compounded yearly at 2% per annum?

A. ₹606 ✓

B. ₹604

C. ₹600

D. ₹608

Q10 Mathematics

The length of a rectangular plot is twice its breadth and the length of its diagonal is $6\sqrt{5}m$. The perimeter of the plot is

A. 36 m ✓

B. 54 m

C. 48 m

D. 28 m

Q11 Mathematics

In a class of 80 students, $\frac{1}{10}^{th}$ of the class like Chocolate D and $\frac{1}{20}^{th}$ of the class likes Chocolate E. What is the difference between the number of students who like Chocolate D and the number of students who like Chocolate E?

A. 9

B. 5

C. 2

D. 4 ✓

Q12 Mathematics

A can do a certain work in 45 days. B is 50% more efficient than A, and C is 3 times as fast as A. They started the work together but C left 7 days before completion of the work. In how many days was the entire work completed?

A. 15 days

B. 18 days

C. 10 days

D. 12 days ✓

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Q13 Mathematics

A person sells his goods at 30% profit. If the cost price increases by 25%, and the selling price increases by 10%, then what is his new profit percentage?

A. 16.4%

B. 15.6%

C. 14.4% ✓

D. 13.5%

Q14 Mathematics

Which of the given numbers is divisible by 45?

A. 12345

B. 12365

C. 12355

D. 12375 ✓

Q15 Mathematics

What is the value of $\frac{27}{5} \times \frac{15}{81} \div \left\{\frac{14}{77} \times \frac{86}{72} \times \frac{99}{43}\right\}$?

A. 4

B. 5

C. 2 ✓

D. 3

Q16 Mathematics

Three numbers are in the ratio 17 : 25 : 66 and their HCF is 18. The smallest number among them is:

A. 378

B. 360

C. 306 ✓

D. 342

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Q17 Mathematics

A sum of ₹x is divided among A, B and C such that the ratio of their shares is 2 : 3 : 5. If the positive difference between the shares of B and C is ₹5,940, then what is the value of x?

A. 29,700 ✓

B. 23,220

C. 22,680

D. 25,920

Q18 Mathematics

A solid metallic cylindrical rod of radius 1.4 cm and length 24 cm is melted and recast as identical spherical balls of radius 2 mm. How many maximum such balls could be made?

A. 4500

B. 4410 ✓

C. 4450

D. 4580

Q19 Mathematics

The product of 16 and another number y is 460.8. What will the quotient be when y is divided by 16?

A. 2.2

B. 1.7

C. 1.8 ✓

D. 2.3

Q20 Mathematics

In ΔABC, AD is a median of the triangle, intersecting BC at D. The three medians of the triangle meet at a point G. If AG = (7y – 3) cm and DG = 3y cm, then find the length of AD.

A. 33 cm

B. 24 cm

C. 30 cm

D. 27 cm ✓

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Q21 Mathematics

A and B can do a piece of work in 45 and 40 days respectively. They began the work together but A left the work after some days and B alone finished the remaining work in 23 days. After how many days did A leave?

A. 11 days

B. 10 days

C. 12 days

D. 9 days ✓

Q22 Mathematics

The length of the hypotenuse of a right-angled triangle is 13 cm and the length of one of the other two sides is 5 cm. What is the area (in cm^2) of the triangle?

A. 29.5

B. 30 ✓

C. 28

D. 32.5

Q23 Mathematics

A sum of money, when invested at 14.5% p.a. simple interest amounts to ₹13,464 after 6 years. What was the sum invested?

A. ₹7,600

B. ₹70,800

C. ₹7,200 ✓

D. ₹7,450

Q24 Mathematics

$484.71 + 285.33 - 827.38 + 73.9 = ?$

A. 16.56 ✓

B. 36.54

C. 15.78

D. 19.78

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Q25 Mathematics

Jack obtained 45% marks in a test and failed by 18 marks. If he obtained 65% marks, he would have got 6 marks more than the minimum marks required to pass the test. How much were the maximum marks one could obtain in that test?

A. 80

B. 130

C. 120 ✓

D. 140

Q26 Mathematics

The average of 29.75, 18.25 and number N is 23. What is the value of number N?

A. 23

B. 19

C. 17

D. 21 ✓

Q27 Mathematics

Himani bought a washing machine for ₹8,000 and spent ₹500 on its repairs. She sold it at 20% profit. With the money she got by selling it, she bought another washing machine and sold it at 10% loss. What is her overall loss/profit?

A. Profit ₹680 ✓

B. Loss ₹600

C. Profit ₹640

D. Loss ₹640

Q28 Mathematics

If $(y + z) = 25$ and $(y^2 - z^2) = 225$, what is the value of z?

A. 9

B. 7

C. 10

D. 8 ✓

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Q29 Mathematics

The average age of 34 boys in a class is 12 years. If the age of teacher is also included, the average age increases by 1 year. What is the age of the teacher?

A. 45

B. 42

C. 44

D. 47 ✓

Q30 Mathematics

If $\tan\theta + 3\cot\theta = 2\sqrt{3}, 0° < \theta < 90°$, then what is the value of $\text{cosec}^2\theta$?

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

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

C. $\frac{4}{3}$ ✓

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

Q31 Mathematics

What is the sum of LCM and HCF of 28 and 49?

A. 210

B. 203 ✓

C. 196

D. 217

Q32 Mathematics

A certain sum at compound interest amounts to ₹3,025 in 2 years and to ₹3,327.5 in 3 years, interest compounded annually. The sum and the rate of interest p.a. are, respectively:

A. ₹2,800 and 9%

B. ₹2,200 and 10%

C. ₹2,000 and 8.5%

D. ₹2,500 and 10% ✓

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Q33 Mathematics

Karthik and Sneha together can do a work in 25 days. Sneha and Madhuri together can do the same work in 20 days. Madhuri and Karthik together can do the same work in 15 days. How long will they take to complete the work, if all three of them work together? (Number of days should be rounded off to the nearest integer)

A. 13 days ✓

B. 11 days

C. 17 days

D. 19 days

Q34 Mathematics

The radius of the base of a solid right circular cone is 5 cm and its height is 12 cm. What is its total surface area (in cm^2)?

A. 34π

B. 90π ✓

C. 84π

D. 70π

Q35 Mathematics

The lengths of the three sides of a triangle are 12 cm, 15 cm and 21 cm, respectively. Find the area (in cm^2) of the triangle.

A. $48\sqrt{6}$

B. $30\sqrt{6}$

C. $36\sqrt{6}$ ✓

D. $72\sqrt{6}$

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

The ratio of savings and expenditure of Kiran is 7 : 13 and his monthly income is ₹1,80,000. The savings are divided in the ratio of 4 : 3 between Mutual funds and Equity. What is the amount of money saved in the form of Mutual Funds?

A. ₹36,000 ✓

B. ₹45,000

C. ₹39,000

D. ₹63,000

Q2 Mathematics

The length of each side of a regular hexagon is $2\sqrt{3}$ cm. What is the area of the given hexagon?

A. $24\sqrt{3}$ cm^2

B. 54 cm^2

C. 18 cm^2

D. $18\sqrt{3}$ cm^2 ✓

Q3 Mathematics

The value of

$(48 \div 72 \times 3) - [15 \div 8 \times (40 - 32) - 10]$ is:

A. -3 ✓

B. 4

C. 3

D. -4

Q4 Mathematics

A hemispherical bowl of internal radius 24 cm is full of liquid. This liquid is to be filled in cylindrical bottles, each of internal radius 6 cm and height 8 cm. How many bottles are required to empty the bowl?

A. 35

B. 32 ✓

C. 36

D. 30

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Q5 Mathematics

A student walks from his house at 2.5 km/hour and reaches his school 6 minutes after school time. Next day he increases his speed by 1 km/hour and reaches his school 6 minutes before school time. How far is the school from his house?

A. 2.5 km

B. 1.75 km ✓

C. 2.25 km

D. 2 km

Q6 Mathematics

If $a + b = 15$, and $a^2 + b^2 = 113$, then what is the value of $a^3 + b^3$?

A. 845

B. 875

C. 855 ✓

D. 865

Q7 Mathematics

A sum of money invested at 10% compound interest per annum amounts to ₹10,164 in 2 years interest compounded annually. What was the sum invested?

A. ₹8,800

B. ₹8,400 ✓

C. ₹8,200

D. ₹8,300

Q8 Mathematics

Rakesh travels in a car at 50 km/h for 2 hours, on a bike at 35 km/h for 2 hours, and in a train at 100 km/h for 4 hours. What is the average speed at which Rakesh travelled?

A. 74 km/h

B. 71.25 km/h ✓

C. 75 km/h

D. 72.50 km/h

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Q9 Mathematics

Team India scored runs in the first 30 overs in an ODI match at an average of 5.6 runs per over. What is the required runs per over in the remaining 20 overs at which the team has to score to meet a total target of 320?

A. 4.6 runs per over

B. 7.6 runs per over ✓

C. 6.4 runs per over

D. 8.9 runs per over

Q10 Mathematics

Find the compound interest on ₹2000 at 10% p.a. for 2 years, compounded annually.

A. ₹200

B. ₹400

C. ₹520

D. ₹420 ✓

Q11 Mathematics

If $a = \frac{17}{99}$, $b = \frac{13}{47}$ and $c = \frac{34}{33}$, then what is the value of $(ab) \div c = ?$

A. $\frac{17}{264}$

B. $\frac{19}{289}$

C. $\frac{21}{354}$

D. $\frac{13}{282}$ ✓

Q12 Mathematics

When 4230, 5986 and 9059 are divided by the greatest number m, the remainder in each case is n. What is the value of (m – n)?

A. 163

B. 159

C. 153

D. 160 ✓

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Q13 Mathematics

If a product of 0.225, 0.36 and a number N is 243, then what is the value of number N?

A. 3300

B. 3600

C. 2400

D. 3000 ✓

Q14 Mathematics

Let x be the least number lying between 8000 and 8500, which when divided by $12, 14, 16, 35$ and 84, the remainders are $4, 6, 8, 27$ and 76, respectively. The tens digit in x is:

A. 9 ✓

B. 7

C. 8

D. 5

Q15 Mathematics

Travelling at $\frac{3}{5}$ of her usual speed, Simran covered a distance of 42 km in 35 minutes. What distance (in km) will Simran cover in 27 minutes if she travels at her usual speed?

A. 54 ✓

B. 48

C. 60

D. 64

Q16 Mathematics

Which of the following numbers is divisible by 11?

A. 1210121 ✓

B. 1201121

C. 1210211

D. 1120121

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Q17 Mathematics

20 people can do a piece of work in 12.5 days. After 8 days, 8 workers left. In how many days will the remaining work be completed?

A. 7.5 ✓

B. 6

C. 9

D. 8

Q18 Mathematics

$\frac{5}{6} \times \frac{3}{7} + y = \frac{29}{63}$. What is the value of $(10y - 1)$?

A. $\frac{5}{42}$

B. $-\frac{3}{63}$

C. $\frac{13}{126}$

D. $\frac{2}{63}$ ✓

Q19 Mathematics

From a point Q, the length of the tangent to a circle is 21cm and the distance of Q from the centre 'O' of the circle is 29cm. Find the radius of the circle.

A. 50cm

B. 20cm ✓

C. 8cm

D. 30cm

Q20 Mathematics

Rajesh needs to buy some cardboard to build a box that is 12 inches long, 8 inches wide, and 10 inches high. How much cardboard is needed to build the box?

A. 592 sq inches ✓

B. 400 sq inches

C. 350 sq inches

D. 960 sq inches

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Q21 Mathematics

A sum of ₹14,500 was invested at 9% per annum simple interest for few years. The interest accrued during this period was ₹7,830. What was the period of investment?

A. 6 years ✓

B. 4 years

C. 7 years

D. 5 years

Q22 Mathematics

In a stock of two products A and B initially 80% of the total stock was product A. If 20 kg of product A and 8 kg of product B were taken out from the stock, then the ratio of the product A to product B in the stock changed to 9 : 2. What was the total stock (in kg) in the beginning?

A. 150 kg

B. 165 kg

C. 220 kg

D. 160 kg ✓

Q23 Mathematics

The average score in Mathematics of a class of 36 students is 60. If the top two scores are excluded, the average goes down by 2. If the second highest score of the class is 90, find the highest score of the class.

A. 98 ✓

B. 99

C. 95

D. 96

Q24 Mathematics

Pipes A and B can fill a tank in 30 hours and 45 hours, respectively while pipe C alone can empty the full tank in 20 hours. When the tank is full, C alone is opened for 8 hours and then closed and pipes A and B are opened together at the same time. Now, how much time will pipes A and B together take to fill the tank completely?

A. 7.5 hours

B. 8 hours

C. 7.8 hours

D. 7.2 hours ✓

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Q25 Mathematics

The total surface area of a solid right circular cylinder of height 9 cm is 704 cm^2. Its volume is 11k cm^3. Find the value of k. $\left(\text{Use } \pi = \frac{22}{7}\right)$

A. 122

B. 126 ✓

C. 125

D. 121

Q26 Mathematics

Kiran has 24 white beads and Resham has 18 black beads. They want to arrange the beads in such a way that each row contains equal number of beads and each row must contain either only black beads or only white beads. What is the greatest number of beads that can be arranged in a row?

A. 3

B. 8

C. 6 ✓

D. 12

Q27 Mathematics

Out of 60 students in a group, the ratio of the number of boys to that of girls is 2:1. If the average weight of boys is 50 kg and that of girls is 44 kg, then what is the average weight (in kg) of all the students in the group?

A. 48.25

B. 49

C. 48 ✓

D. 47.5

Q28 Mathematics

By selling an item for ₹4,125, A gains 10%. At what price (in ₹) should he sell the item in order to gain 18%?

A. 4,425 ✓

B. 4,510

C. 4,400

D. 4,450

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Q29 Mathematics

Two children A and B have some toffees. If A has 8 toffees, and B has one toffee more than 50% of the total toffees with them, then how many toffees does B have?

A. 10 ✓

B. 9

C. 12

D. 8

Q30 Mathematics

Which of the following numbers is divisible completely by both 9 and 11?

A. 12345

B. 277218

C. 10098 ✓

D. 181998

Q31 Mathematics

If the roots of the equation $2x^2 - 3x + a = 0$ are in the ratio $1 : 2$, then find the value of a.

A. -2

B. 2

C. -1

D. 1 ✓

Q32 Mathematics

When $\alpha = 30^0$, what is the value of $\sin\alpha \cos\alpha$?

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

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

C. $\frac{\sqrt{3}}{4}$ ✓

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

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Q33 Mathematics

In ΔABC, $DE \| BC$, intersecting AB at D and AC at E. AD : BD :: 2 : 3 and the area of trapezium BDEC is 63 cm^2. What is the area of ΔADE?

A. 12 cm^2 ✓

B. 28 cm^2

C. 14 cm^2

D. 42 cm^2

Q34 Mathematics

If 27.5% of a number is 11, then the number is:

A. 48

B. 36

C. 44

D. 40 ✓

Q35 Mathematics

The length and the breadth of a rectangular park are in the ratio 7 : 3. The perimeter of the park is 21000 m. What is the difference between the length and the breadth of the park?

A. 3150 m

B. 3400 m

C. 4200 m ✓

D. 3675 m

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

A can do a certain work in 15 days and B can do one-third of the same work in 10 days. A and B work together for 6 days and then A leaves. B completes the remaining work with C in 8 days. A and C together can complete the original work in:

A. 12 days ✓

B. 9 days

C. 18 days

D. 15 days

Q2 Mathematics

The value of $5 - 10 \div 5 \times 2 - [12 \div 6 \text{ of } \{5 \times 6 \div (6 - 9) + 13\} \times (8 \div 4 \text{ of } 3)]$ is

A. $\frac{5}{9}$ ✓

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

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

D. $\frac{4}{9}$

Q3 Mathematics

By selling an item for ₹222, a person incurs a loss of ₹48. What is the percentage of loss incurred in the transaction?

A. $18\frac{8}{9}\%$

B. $17\frac{7}{9}\%$ ✓

C. $16\frac{7}{18}\%$

D. $21\frac{23}{37}\%$

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Q4 Mathematics

The income of A is 25% less than the income of B whose income is 40% more than that of C. The income of C is 20% less than that of D. By what percent is the income of A more than the income of C?

A. 4%

B. 10%

C. 8%

D. 5% ✓

Q5 Mathematics

Anmol can complete a piece of work in 25 days. Together with Garima he can complete the same work in 15 days, while Anmol and Aseema working together can complete the same work in 20 days. In how many days can Garima and Aseema working together complete the same work?

A. $\frac{300}{11}$ ✓

B. 30

C. $\frac{250}{9}$

D. 29

Q6 Mathematics

Find the area of a rhombus whose diagonals are 48m and 64m long.

A. 1736 sq.m

B. 1636 sq.m

C. 1436 sq m.

D. 1536 sq.m ✓

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Q7 Mathematics

Given are the scores of a batsman in the last 10 innings. Find the median score of the batsman in these innings.

65, 180, 81, 6, 63, 27, 122, 8, 165, 50

A. 65

B. 64 ✓

C. 64.5

D. 63

Q8 Mathematics

The numbers 4,6,10, x, 20,24,32 are arranged in ascending order. Find the value of x if their mean and their median are equal.

A. 16 ✓

B. 20

C. 8

D. 12

Q9 Mathematics

If the 5-digit number 505xy is divisible by 11 and 21, then what is the value of $(7x - 5y)$?

A. 31

B. 30

C. 16

D. 11 ✓

Q10 Mathematics

IJK is an isosceles triangle in which IJ = IK. The value of ∠IJK is what percentage less than 120°, if ∠JIK = 60°.

A. 55%

B. 50% ✓

C. 52%

D. 54%

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Q11 Mathematics

The roots of the equation $9(x+9)^2=441$ are:

A. 2,16

B. -12,-21

C. 12,21

D. -2,-16 ✓

Q12 Mathematics

In covering a distance of 60 km, Arjun takes 2 hours more than Rohit. If Arjun doubles his speed, then he would take 1 hour less than Rohit. Arjun's original speed is:

A. 5 km/hr.

B. 10 km/hr. ✓

C. 25 km/hr.

D. 15 km/hr.

Q13 Mathematics

If $x : y = 3 : 4, then\ (7x - 4y) : (3x + 2y) = ?$

A. 5 : 17 ✓

B. 2 : 7

C. 1 : 3

D. 1 : 4

Q14 Mathematics

The cost of cultivating a square field at the rate of ₹320 per hectare is ₹2880. Find its area. (Use 1 hectare = 10000 sq.m)

A. 60000 sq.m

B. 80000 sq.m

C. 70000 sq.m

D. 90000 sq.m ✓

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Q15 Mathematics

If $28957.5 \div 268.125 = 108$, then $289.575 \div 2681.25$ is equal to:

A. 0.0108

B. 10.8

C. 1.08

D. 0.108 ✓

Q16 Mathematics

64 students of Class 10 took part in a mathematics quiz. If the number of girls was 16 more than the number of boys, then find the ratio of the number of boys to the total number of students who took part in the quiz.

A. 5 : 8

B. 3 : 8 ✓

C. 3 : 5

D. 4 : 9

Q17 Mathematics

What will be the median of the given data?

1, 1.1, 2.3, 0.1, 0.9, 5, 3.9, 2.5, 4.2, 4.6

A. 2.4 ✓

B. 2.3

C. 2.6

D. 2.5

Q18 Mathematics

A sum of ₹ 14000 amounts to ₹ 18515 in 2 years at a certain rate percent p.a., interest compounded yearly. What will be the compound interest on the same sum, in the same time and at the same rate, if the interest is compounded 8-monthly?

A. ₹ 4494

B. ₹ 4620

C. ₹ 4634 ✓

D. ₹ 3234

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Q19 Mathematics

The perimeter of a square is equal to the perimeter of a rectangle of length 56 cm and breadth 42 cm. Find the perimeter of a semicircle (in cm) whose diameter is equal to the side of the square (Use $\pi = \frac{22}{7}$)

A. 182

B. 198

C. 224

D. 126 ✓

Q20 Mathematics

The greatest number that exactly divides 536, 1064 and 1928 is

A. 6

B. 4

C. 12

D. 8 ✓

Q21 Mathematics

In a group of students, the number of girls is three-fourth of the number of boys. If two-third of the number of girls and one-half of the number of boys like mango juice, then what fraction of the total number of girls and boys like mango juice?

A. $\frac{2}{7}$

B. $\frac{4}{7}$ ✓

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

D. $\frac{1}{7}$

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Q22 Mathematics

X can do a certain work in 84 days. Y is 50% less efficient than X while Z takes 28 days to do the same work. To complete the work, Y started the work, X joined him after 3 days and Z joined them after 7 days from the beginning. For how many days did Z work to complete the work?

A. 14

B. 17 ✓

C. 15

D. 16

Q23 Mathematics

Find the least number which when divided by 11,12,13,14 and 15 leaves the remainder 2 in each case.

A. 60062 ✓

B. 60058

C. 60002

D. 60060

Q24 Mathematics

Ravi has 1530 eggs with him while Vinita has 2380 eggs with her that needs to be placed in cartons. What is the maximum number of eggs that each carton should hold so that both Ravi as well as Vinita find such cartons acceptable to use, leaving no empty space, nor having any egg unpacked?

A. 255

B. 340

C. 170 ✓

D. 85

Q25 Mathematics

The volume of a right circular cylinder is $1792\pi\ cm^3$ and its radius is 16 cm. What is the curved surface area (in cm^2) of the cylinder?

A. 112π

B. 256π

C. 224π ✓

D. 192π

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Q26 Mathematics

Avik runs at a speed of 8 metres per second. How many kilometres will Avik cover in 24 minutes if he continues running at the same speed?

A. 11.44

B. 11.52 ✓

C. 11.60

D. 11.56

Q27 Mathematics

Sachin and Sehwag together have ₹ 950. On taking ₹ 250 from Sehwag, Sachin will have the same amount as what Sehwag had earlier. Find the ratio of the amounts that were with Sehwag and Sachin initially.

A. 12 : 7 ✓

B. 7 : 5

C. 9 : 7

D. 13 : 9

Q28 Mathematics

A solid right-circular cone is 11.2 cm high and the radius of its base is 2.8 cm. If the cone is melted and recast into a sphere, then what will be the diameter of the sphere?

A. 4.2 cm

B. 8.4 cm

C. 2.8 cm

D. 5.6 cm ✓

Q29 Mathematics

Find the cost of painting all surfaces of a 10 m long hollow steel pipe whose internal and external diameters measure 15 cm and 17 cm respectively, if the cost of painting 1 cm^2 of the surface is ₹0.15. [Use $\pi = \frac{22}{7}$]

A. ₹15200.80

B. ₹15160.80

C. ₹15100.80 ✓

D. ₹15000.80

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Q30 Mathematics

Simplify the following expression:

$3.5 \times 0.5 \times (4.4 - 0.625 \div 1.5625)$

A. 14

B. 1.75

C. 7 ✓

D. 10.5

Q31 Mathematics

Find the value of x in the following equation:

$$\left[1 + \frac{1}{1+\frac{1}{1+\frac{1}{5}}}\right] \div 1\ \frac{6}{11} = \frac{x}{2}$$

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

B. 1

C. 2 ✓

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

Q32 Mathematics

A sum of ₹3680 is invested at 12.5% p.a. simple interest for 6 years. What will be the total amount payable on maturity?

A. ₹6440 ✓

B. ₹6460

C. ₹6420

D. ₹6480

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Q33 Mathematics

Hrithik sells a table at a profit of 37.5%. If he had bought it at 12.5% less and sold it for ₹330 less, he would have gained 10%. The cost price of the table is what percentage less than ₹1000?

A. 20% ✓

B. 22%

C. 21%

D. 23%

Q34 Mathematics

The value of the expression $7\frac{2}{3} \times 5\frac{3}{4} + 9\frac{1}{2} \times 6\frac{3}{4}$ is

A. $103\ \frac{7}{24}$

B. $98\ \frac{3}{24}$

C. $108\ \frac{5}{24}$ ✓

D. $114\frac{1}{24}$

Q35 Mathematics

If the rate of interest is 20% per annum and interest is compounded half yearly, then in $\frac{3}{2}$ years a sum of ₹4000 will amount to:

A. ₹5224

B. ₹5324 ✓

C. ₹5334

D. ₹5234

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Q1 Mathematics

Let N be the least number which when divided by 15, 25, 35, 40 and 42, the remainder in each case is 1 and N is divisible by 271. What is the sum of digits of N?

A. 18

B. 14

C. 13 ✓

D. 17

Q2 Mathematics

A boy walking at the rate of 4 km per hour crosses a square field diagonally in 36 seconds. What is the area (in m^2) of the field?

A. 800 ✓

B. 1600

C. $\frac{800}{\sqrt{2}}$

D. $800\sqrt{2}$

Q3 Mathematics

The value of $4\frac{1}{3} \div \left[2\frac{2}{3} - \frac{1}{3} \times \left(4\frac{1}{2} - 3\frac{1}{3}\right)\right]$ is

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

B. $1\frac{37}{41}$ ✓

C. $1\frac{14}{25}$

D. $1\frac{1}{25}$

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Q4 Mathematics

Ram and Rahim together have ₹1210. If $\frac{1}{3}$ of Ram's money is equal to $\frac{2}{5}$ of Rahim's amount, then what is the amount (in ₹) that Rahim has?

A. 550 ✓

B. 650

C. 660

D. 560

Q5 Mathematics

Simplify:

$$[(7 \times 9) + (3 \times 8) + 3] \div [(9 \times 4) + (72 \div 8)]$$

A. 3

B. 2 ✓

C. 4

D. 5

Q6 Mathematics

If $\sin\theta = \frac{4}{5}$, and $0^0 < \theta < 90^0$, then find the value of

$$\frac{3\tan\theta - 5\cos\theta}{3\sec\theta - 4\cot\theta}$$

A. 1

B. 0

C. $\frac{1}{2}$ ✓

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

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Q7 Mathematics

Find the total surface area (in m^2) of a cone, if its slant height is 32 m and diameter of its base is 48 m.

[Use $\pi = \frac{22}{7}$]

A. 4424

B. $12077\frac{4}{7}$

C. $12067\frac{4}{7}$

D. 4224 ✓

Q8 Mathematics

Kritika lends ₹64000 to Nidhi for a year at 25% interest per annum, compounded half yearly. Find the interest that has to be paid by Nidhi.

A. ₹ 17100

B. ₹ 17000 ✓

C. ₹ 17200

D. ₹ 17300

Q9 Mathematics

Ravish has read $\frac{4}{5}$ of a book while Soma has read only $\frac{5}{8}$ of the book she is reading. Both however have another 120 pages of their respective books remaining to be read. What fraction of the number of pages read by Ravish has been read by Soma?

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

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

C. $\frac{5}{12}$ ✓

D. $\frac{25}{32}$

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Q10 Mathematics

The HCF of 1683, 2244 and 5049 is x .The sum of digits of x is

A. 15

B. 12 ✓

C. 11

D. 13

Q11 Mathematics

A, B and C can complete a work in 12, 16 and 24 days respectively. B and C worked together for 4 days then C left the work and A replaced him. In how many days will the remaining work be completed?

A. 2 days

B. 4 days ✓

C. 5 days

D. 3 days

Q12 Mathematics

To do a certain work, the ratio of the efficiencies of A, B and C is 3:5:8. Working together, they can complete the same work in 15 days. If only A and B work together for 12 days and leave, and then C comes to complete the remaining work, for how many days will C work?

A. 10

B. 15

C. 18 ✓

D. 12

Q13 Mathematics

By selling a chair for ₹2858.77, a person gains 27%. Find the cost price of the chair.

A. ₹2251 ✓

B. ₹2150

C. ₹2151

D. ₹2250

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Q14 Mathematics

By selling 8 pens for ₹75, a shopkeeper loses 25%. How many pens should he sell for ₹372 so as to earn a 24% profit?

A. 24 ✓

B. 20

C. 30

D. 18

Q15 Mathematics

k is the greatest number which, when divides 2996, 4752 and 7825, the remainder in each case is the same. The product of the digits of k is

A. 84

B. 108 ✓

C. 120

D. 72

Q16 Mathematics

If an 8-digit number 256139A4 is divisible by 11, find the value of A.

A. 8 ✓

B. 7

C. 6

D. 9

Q17 Mathematics

The value of $\frac{12-[(3-5)\times4]\div8-8+[6\div(12\times2)]}{9\times15\div(12\times10)-[12\div(6\times2)]}$ is:

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

B. 48

C. 42 ✓

D. $\frac{21}{17}$

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Q18 Mathematics

A cylinder is inscribed in a sphere. The radius of the sphere is $\frac{5}{6}$ times the height of the cylinder. What is the ratio of the volume of the cylinder to the volume of the sphere?

A. 36:25

B. 6:5

C. 72:125 ✓

D. 27:50

Q19 Mathematics

The area of a square is $81x^2+72x+16$. Find the measure of each side of the square, where $x > 0$.

A. $2\left(\frac{9x}{2}+1\right)$

B. $9x+2$

C. $\left(\frac{9x}{2}+2\right)$

D. $2\left(\frac{9x}{2}+2\right)$ ✓

Q20 Mathematics

Ram and Dipti each invested a sum of ₹8000 for a period of two years at 30% compound interest per annum. However, while for Ram the interest was compounded annually, for Dipti it was compounded every eight months. How much more will Dipti receive as interest compared to Ram at the end of the two-year period?

A. ₹296

B. ₹312

C. ₹304 ✓

D. ₹320

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Q21 Mathematics

Ruchira was supposed to complete a task in 22 days. However, during the first 10 days she did only $\frac{1}{30}$ of the work on each day. What share of the work will Ruchira have to do daily from the 11^{th} day so that the work is completed on time?

A. $\frac{1}{18}$ ✓

B. $\frac{1}{19}$

C. $\frac{2}{39}$

D. $\frac{3}{44}$

Q22 Mathematics

Find the area of an isosceles triangle whose base is 54cm long and each equal side is 45cm long.

A. 1620 sq.cm

B. 972 sq.cm ✓

C. 1215 sq.cm

D. 1944 sq.cm

Q23 Mathematics

A man covers 250 km, 120 km and 50 km at the speed of 50 km/h, k km/h and 25 km/h, respectively. If his average speed for the whole journey is 42 km/h, then what is the value of k?

A. 45

B. 35

C. 40 ✓

D. 36

Q24 Mathematics

10 less than a given number K, 10 more than the given number K, and 38 more than the given number K are in continued proportion. Find the given number K, where $K > 0$.

A. 60 ✓

B. 40

C. 70

D. 50

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Q25 Mathematics

Find the arithmetic mean of 37, 85, 65 and 23.

A. 50

B. 52.5 ✓

C. 55

D. 47.5

Q26 Mathematics

Shubham secured 345 marks out of 600 in the annual examination. Find the percentage of marks obtained by him in the examination.

A. 58.25

B. 58.5

C. 57.25

D. 57.5 ✓

Q27 Mathematics

Simplify the following expression .

$$81.7100 + 198.0020 - 2071.1985 + 9.0900 + 1591.42$$

A. -190.8765

B. 190.9865

C. -190.9765 ✓

D. -190.9865

Q28 Mathematics

Kavita has deposited ₹4000 with the bank for two years at 6.25% simple interest per annum. What will be the total amount that Kavita will receive at the end of the two-year term?

A. ₹4400

B. ₹4475

C. ₹4625

D. ₹4500 ✓

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Q29 Mathematics

The mode and the mean of a grouped data are 27.5 and 28.5 respectively. Find the median, correct to two places of decimal, using empirical relation.

A. 28.17 ✓

B. 27.17

C. 9.83

D. 19.83

Q30 Mathematics

If $\frac{23}{3}$ more than a number is $\frac{25}{6}$, then find the number.

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

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

C. $-\frac{7}{2}$ ✓

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

Q31 Mathematics

What will be the mean of all the prime numbers between 10 and 22?

A. 14

B. 15 ✓

C. 16

D. 13

Q32 Mathematics

If a man walks at $\frac{7}{8}$ of his usual speed, he reaches his office 20 minutes late than the usual time. Find the usual time he takes (in minutes).

A. 120

B. 140 ✓

C. 160

D. 100

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Q33 Mathematics

The diagonal of a rectangle is 53 cm and its area is 1260 cm^2 . What is the perimeter (in cm) of the rectangle?

A. 146 ✓

B. 144

C. 148

D. 152

Q34 Mathematics

The lengths of a pair of parallel sides of a trapezium are respectively 18 cm and 15 cm and the perpendicular distance between these two sides is 12 cm. What is the area (in cm^2) of the trapezium?

A. 396

B. 297

C. 198 ✓

D. 99

Q35 Mathematics

A sphere has a radius of 8 cm. A solid cylinder has a base radius of 4 cm and a height of h cm. If the total surface area of the cylinder is half the surface area of the sphere, then find the height of the cylinder.

A. 12 cm ✓

B. 10 cm

C. 9 cm

D. 15 cm

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Q1 Mathematics

If $\sqrt{3}\ tan\ 2\theta - 3 = 0$, then find the value of $\tan\theta \sec\theta - \sin\theta$ where $0 < \theta < 90°$

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

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

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

D. $\frac{1}{6}$ ✓

Q2 Mathematics

If $6y^2 - 13y + 6 = 0$, then find the product of the two roots of the equation.

A. $\frac{13}{6}$

B. -1

C. 1 ✓

D. $\frac{-13}{6}$

Q3 Mathematics

Two chords AB and CD of a circle intersect at a point F outside the circle.

If AF = 12 cm, BF = 4 cm and CF = 16 cm, find the length of CD.

A. 10 cm

B. 13 cm ✓

C. 12 cm

D. 11 cm

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Q4 Mathematics

The amount payable on maturity of a certain sum which is invested for 5 years at a certain rate per cent p. a. is ₹9,800 and the amount payable on the same sum invested for 10 years at the same rate is ₹12,600. If simple interest is offered in both cases, the rate of interest p. a. is:

A. 7.8%

B. 8% ✓

C. 8.5%

D. 10%

Q5 Mathematics

A sum of money at certain rate of interest when compounded annually becomes ₹625 in 3 years and ₹675 in 4 years. What is the rate of Interest per annum?

A. 6%

B. 8% ✓

C. 7%

D. 4%

Q6 Mathematics

The area of a rectangle is 453.6 m^2. If its length is 27 m, then what is the perimeter of the rectangle?

A. 87.6 m ✓

B. 85.4 m

C. 89.8 m

D. 86.6 m

Q7 Mathematics

A solid metallic sphere of radius 3 cm is melted and drawn into a wire of thickness 4 mm. What is the length of the wire (in m)?

A. 9.25

B. 7.5

C. 9 ✓

D. 8

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Q8 Mathematics

Evaluate $\frac{\cos^2(45°+\theta)+\cos^2(45°-\theta)}{\text{cosec}^2 30° \sin^2 45° - \sec^2 60°}$.

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

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

C. $-\frac{1}{2}$ ✓

D. $-\frac{1}{6}$

Q9 Mathematics

A circular racing track has been developed in a field. If the difference between the outer circumference and the inner circumference of the racing track is 33 m, then find the width of the track (in m).

$\left(Use\ \pi = \frac{22}{7}\right)$

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

B. $5\frac{1}{4}$ ✓

C. $5\frac{3}{4}$

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

Q10 Mathematics

A sum of ₹9,800 was invested for a year at 10% interest per annum, compounded half-yearly. What would been the interest payable at the end of the year?

A. ₹1,004.50 ✓

B. ₹1,003.50

C. ₹1,005.60

D. ₹980

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Q11 Mathematics

In the data set given below, what is the difference between the Median and the Mode?

{2.1, 5, 6, 7, 8, 9.3 ,11 ,15 ,17 ,19.21 ,27 ,31 ,31 ,33 ,16.5 ,14 ,10}

A. 10

B. 17 ✓

C. 15

D. 19

Q12 Mathematics

Ravi has to go from Hyderabad to Delhi. The distance between Hyderabad and Delhi is 1,200 kms. He decides to travel 25% of the distance on foot, 30% of the distance by bus, 15% of the distance by train and the remaining distance by an airplane. What is the distance travelled by Ravi by an Airplane?

A. 425 km

B. 580 km

C. 360 km ✓

D. 300 km

Q13 Mathematics

A can complete 12% of the work in 15% of the allotted time. A and B worked for the entire period of the allotted time and the work got completed on time. What portion of the work was done by B?

A. 10%

B. 20% ✓

C. 25%

D. 15%

Q14 Mathematics

A certain sum amounts to ₹22,494 in 7 years at x% per annum on simple interest. If the rate of simple interest per annum had been (x + 4)%, the amount payable after 7 years would have been ₹25,917. Find the sum invested.

A. ₹12,275

B. ₹12,175

C. ₹11,975

D. ₹12,225 ✓

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Q15 Mathematics

In a mixture of 90 litres, the ratio of milk to water is 4 : 1. In another mixture of 90 litres, the ratio of milk to water is 3 : 2. What is the positive difference between the quantities of milk in the two mixtures?

A. 18 litres ✓

B. 22 litres

C. 23 litres

D. 16 litres

Q16 Mathematics

If 32% of $22.5 - \frac{2}{3} \times \sqrt[3]{512} \times \sqrt{81} = y$, then the value of y is:

A. –41.2

B. –40.2

C. –40.8 ✓

D. –41.8

Q17 Mathematics

The surface area of a sphere is 61600 sq. cm. Find the volume of the sphere (in cu m). [Use $\pi = \frac{22}{7}$]

A. $\frac{43.12}{3}$

B. $\frac{4.312}{3}$ ✓

C. 43.12

D. 4.312

Q18 Mathematics

A shopkeeper mixes 30 kg of rice which he purchased at ₹30/kg and 40 kg of rice which he purchased at ₹28/kg and he sells the entire mixture at ₹28/kg. What is the profit or loss percentage (approximated to nearest integer)?

A. 3% loss ✓

B. 5% profit

C. 7% profit

D. 6% loss

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Q19 Mathematics

What is the smallest cubic number, which is divisible by 72, 108 and 300?

A. 5400

B. 27000 ✓

C. 3375

D. 21600

Q20 Mathematics

The sum of two numbers is 17 while the sum of their squares is 157. Find the sum of the cubes of those two numbers.

A. 1547 ✓

B. 3791

C. 1491

D. 3094

Q21 Mathematics

Sudhir is 4.5 times as efficient as Aarav. If they work together, they can complete a piece of work in 8 days. How many days will Aarav take to do the same work alone?

A. 36

B. 48

C. 40

D. 44 ✓

Q22 Mathematics

A family spends ₹4,600, ₹5,600, ₹4,800, ₹3,800, and ₹6,000 on groceries in the first 5 months of a year. How much should the family spend in the 6^{th} month to make the 6 months average spending of the family on groceries to ₹4,500?

A. ₹2,200 ✓

B. ₹4,500

C. ₹3,650

D. ₹3,500

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Q23 Mathematics

Find the product of the greatest among the numbers 0.82, 0.802, 0.85, 0.085 with the smallest among the numbers 0.3, 0.03, 0.203, 2.03

A. 0.0255 ✓

B. 0.246

C. 0.0225

D. 0.2406

Q24 Mathematics

The LCM of two numbers is 20 times their HCF, and the sum of the LCM and the HCF is 504. If the difference of the numbers is 24, then find the sum of the numbers.

A. 210

B. 180

C. 216 ✓

D. 225

Q25 Mathematics

Which of the following numbers is divisible by 30?

A. 45670

B. 12340

C. 34560 ✓

D. 23450

Q26 Mathematics

The ratio of the length, width and height of a cuboid is

4 : 3 : 5 and the sum of the lengths of all its edges is 144 cm. Find the total surface area of the cuboid.

A. 1026 cm^2

B. 1620 cm^2

C. 756 cm^2

D. 846 cm^2 ✓

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Q27 Mathematics

Arushi was to multiply a number by 2.4, but instead multiplied by 4.2. If the product she obtained was 65.1, then what is the correct product that she should have got?

A. 113.93

B. 37.20 ✓

C. 46.88

D. 36.50

Q28 Mathematics

A train covers a distance of 57.6 km in 48 minutes. What is its speed in m/s?

A. 21

B. 20 ✓

C. 18

D. 24

Q29 Mathematics

The average weight of 14 students of a class is 20 kg. If a student leaves the class, the average weight of the class drops by 2 kg. Find the weight of the student (in kg) who left the class.

A. 43

B. 46 ✓

C. 49

D. 45

Q30 Mathematics

The present average age of X, Y and Z is 44 years. 8 years ago the average age of X and Y was 38 years. What is the present age of Z?

A. 38 years

B. 39 years

C. 41 years

D. 40 years ✓

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Q31 Mathematics

Sunita won $\frac{3}{5}$ of the marbles that were there in the beginning of the game. Ravi won $\frac{2}{3}$ of the remaining marbles while Sunny won the remaining 60 marbles. How many marbles did Sunita win?

A. 240

B. 255

C. 285

D. 270 ✓

Q32 Mathematics

2 litres of a liquid having milk and water in the ratio 3 : 2 is mixed with 3 litres of a liquid having milk and water in the ratio 2 : 3. Find the ratio of milk to water in the new mixture.

A. 12 : 13 ✓

B. 9 : 4

C. 1 : 1

D. 5 : 6

Q33 Mathematics

A train running at 90 km/h crosses an electric pole in 18 seconds and a platform in 65 seconds. What is the length of the platform?

A. 1175 m ✓

B. 1250 m

C. 1050 m

D. 1020 m

Q34 Mathematics

The length of each edge of a cube is 2.6 cm. What is the total surface area (in cm^2) of the cube?

A. 40.56 ✓

B. 40.76

C. 39.96

D. 40.36

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Q35 Mathematics

$$\frac{9}{15} \times \frac{45}{81} \times \left\{\frac{49}{6} \times \left(\frac{16}{7} - 2\right)\right\} \times \frac{24}{5} \div \frac{16}{15} = ?$$

A. $\frac{7}{2}$ ✓

B. $\frac{5}{9}$

C. $\frac{9}{5}$

D. $\frac{2}{7}$

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

Vimal secured 46% marks in the exam and failed to qualify in the exam by 10 marks. If he secured 52% marks, he would have secured 8 marks more than what was the minimum qualifying marks. What were the minimum marks one had to score to qualify in the exam?

A. 138

B. 148 ✓

C. 156

D. 146

Q2 Mathematics

The average of two numbers is 46. Together with a third number, the combined average of three numbers changes to 43. What is the third number?

A. 37 ✓

B. 38

C. 40

D. 35

Q3 Mathematics

Sunidhi earned an average of ₹6,250 per month during the past 12 months. During the first 10 months her average earnings per month was ₹5,800. What was Sunidhi's average earnings per month during the last two months of the period?

A. ₹8,500 ✓

B. ₹7,750

C. ₹8,750

D. ₹8,250

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Q4 Mathematics

A can do 75% of the work in 30 days while B can do 50% of the same work in 18 days. If they work together, what fraction of the work will be done in 1 day?

A. $\frac{1}{19}$

B. $\frac{1}{20}$

C. $\frac{7}{120}$

D. $\frac{19}{360}$ ✓

Q5 Mathematics

The amount payable on maturity of a certain sum invested at a certain rate of simple interest per annum for one year was ₹1,484. If the rate of interest had been 2% higher, the amount would have been ₹26.50 more. What was the interest that was paid on the sum invested at the original rate?

A. ₹157

B. ₹159 ✓

C. ₹152.50

D. ₹161

Q6 Mathematics

A conical tent with base diameter 10 m and height 12 m has been made. An additional 10% cloth is required as wastage in stitching the tent. Find the area of the cloth required (in m^2). [Use $\pi = 3.14$]

A. $71.5\ \pi$ ✓

B. $78.5\ \pi$

C. $65\ \pi$

D. $60\ \pi$

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Q7 Mathematics

From $\frac{3}{4}$ of a number P, Ramakrishna subtracts $\frac{2}{3}$ of another number Q and obtain $\frac{5}{8}$ as the difference. What is the answer Ramakrishna should obtain if he subtracts eight times of Q from nine times of P?

A. $\frac{25}{3}$

B. $\frac{25}{4}$

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

D. $\frac{15}{2}$ ✓

Q8 Mathematics

What is the difference between the LCM and the HCF of 24 and 18?

A. 6

B. 66 ✓

C. 24

D. 72

Q9 Mathematics

Find the value of $(162 \div 9) \div 3 - (343 \div 49) \div 7$.

A. 5 ✓

B. $\frac{-1}{7}$

C. 53

D. -1

Q10 Mathematics

When 5 is added to one-third of a number, the sum is 59. What is the number?

A. 167

B. 172

C. 192

D. 162 ✓

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Q11 Mathematics

On simple interest, a certain sum becomes ₹3,400 at 12% p.a. in 3 years. Find the sum (in ₹).

A. 2,800

B. 2,500 ✓

C. 2,600

D. 2,450

Q12 Mathematics

Ramen leaves his home every day at 7:40 am and reaches his office at 9:46 am. One day, he left his home at 7:40 am but travelled one-fourth of the distance at $\frac{6}{7}$ of the usual speed and the rest of the distance at $\frac{6}{5}$ of the usual speed. At what time did Ramen reach office on that day?

A. 9:35:30 am ✓

B. 9:25:50 am

C. 9:45:40 am

D. 9:30:55 am

Q13 Mathematics

If $cot^2\theta = 1 + \cos^2\theta - \sin^2\theta, 0° < \theta < 90°$, then find the value of $\tan^2\theta + \text{cosec}^2\theta$.

A. -1

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

C. 3 ✓

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

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Q14 Mathematics

If $\sin 2x = \cos 60° \cos 30° + \sin 60° \sin 30°$, then which of the following is a possible value of $\tan x + \sec x$? $(0 < x < 90°)$

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

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

C. $\sqrt{3}$ ✓

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

Q15 Mathematics

29.5% of a number is 0.59. What is that number?

A. 1.8

B. 2.4

C. 2 ✓

D. 2.5

Q16 Mathematics

Which of the following numbers is NOT divisible by 9?

A. 45390 ✓

B. 49104

C. 77832

D. 35253

Q17 Mathematics

A person walks 825 m in 3 minutes. What is his speed in km/h?

A. 16.5 ✓

B. 16.75

C. 16.25

D. 16.8

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Q18 Mathematics

Karisma has been spending ₹5,400 on the purchase of an item every year for the past three years. However, the price per unit of this item has fluctuated from year to year with the per unit price being ₹9 in the first year, ₹24 in the second year and ₹14.40 in the third year. What was the average per unit price that Karisma paid for this item in the three years?

A. ₹12.90

B. ₹14.10

C. ₹13.80

D. ₹13.50 ✓

Q19 Mathematics

The LCM of two numbers is 35 times their HCF. The LCM and HCF differ by 238. If the two numbers differ by 14, then find the sum of the numbers.

A. 84 ✓

B. 83

C. 82

D. 86

Q20 Mathematics

What is the median of 15, 2, 7, 8, 11, 5 and 14?

A. 7

B. 8 ✓

C. 7.5

D. 9.5

Q21 Mathematics

A and B can do a piece of work together in 48 days, while B alone can do the work in 60 days. The duo start working together, but B leaves 15 days before the work gets over. For how many days did A and B work together?

A. 48

B. 33

C. 42

D. 45 ✓

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Q22 Mathematics

A stick was broken in two parts which have lengths in the ratio 7 : 11. If the length of the smaller part was 77 cm, find the length of the unbroken stick.

A. 1.80 m

B. 1.26 m

C. 1.21 m

D. 1.98 m ✓

Q23 Mathematics

John bought three items from a store. The price of item A was $\frac{2}{3}$ of the price of item B, while the price of item C was $\frac{3}{4}$ of the price of item B. If the price of item A was ₹88, then what was the price of item C?

A. ₹90

B. ₹99 ✓

C. ₹121

D. ₹108

Q24 Mathematics

The slant height of a right circular cone is 13 cm and the area of the base is 144π cm^2. Find the volume (in cm^3) of the cone.

A. $245\ \pi$

B. $225\ \pi$

C. $260\ \pi$

D. $240\ \pi$ ✓

Q25 Mathematics

When $\frac{3}{4}$ of a number is subtracted from $\frac{6}{7}$ of 126, the answer is 33. What is the number?

A. 100 ✓

B. 92

C. 96

D. 112

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Q26 Mathematics

Find the perimeter (in cm) of a square having an area equal to the area of a rhombus, measures of whose diagonals are 8 cm and 16 cm.

A. 34

B. 36

C. 32 ✓

D. 35

Q27 Mathematics

The total surface area of a solid hemisphere is 1848 cm^2. What is the length of the diameter of the flat surface of the hemisphere. [Use $\pi = \frac{22}{7}$]

A. 14 cm

B. 21 cm

C. 35 cm

D. 28 cm ✓

Q28 Mathematics

By selling an item for ₹1,729 Rohini made a loss of 30%. At what price should she sell the item to make a gain of 16%?

A. ₹2,856.20

B. ₹2,866.40

C. ₹2,865.20 ✓

D. ₹2,865.50

Q29 Mathematics

ABCD is a cyclic quadrilateral, AB is a diameter of the circle. If $\angle ACD = 35°$, find the value of $\angle BAD$.

A. 55° ✓

B. 60°

C. 45°

D. 70°

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Q30 Mathematics

A solid metallic cone of diameter 36 cm and height 12 cm is melted and made into identical solid spheres each of radius 3 cm. How many such spheres can be made?

A. 38

B. 34

C. 36 ✓

D. 32

Q31 Mathematics

A two-digit positive number is such that the product of its digits is 24. When 18 is added to the number, the digits interchange their places. Which smallest positive number should be subtracted from the given number to make it a perfect square?

A. 10 ✓

B. 8

C. 12

D. 0

Q32 Mathematics

Rahul invested a certain sum for two years at 60% p.a. compound interest, compounded annually. If at the end of two years he received interest of ₹11,700, then how much did he initially invest?

A. ₹7,250

B. ₹8,000

C. ₹7,750

D. ₹7,500 ✓

Q33 Mathematics

A certain sum was invested at 40% p.a. compound interest for two years and the interest was compounded annually. If the interest was compounded half-yearly, the amount payable on maturity after two years would have been ₹4,544 more. What was the sum invested?

A. ₹40,000 ✓

B. ₹37,500

C. ₹42,500

D. ₹42,000

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Q34 Mathematics

The length and the width of a rectangular plot of land are 10.5 m and 8 m, respectively. Find the cost of laying grass in the entire plot at ₹15.25 per square metre.

A. ₹1,275

B. ₹1,281 ✓

C. ₹1,293

D. ₹1,302

Q35 Mathematics

If $27 \times 3 \times 896 \div \sqrt{3136} = y + 640$, then find the value of y.

A. 656 ✓

B. 664

C. 648

D. 666

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

The ratio of the speeds of a bus and a car is $7 : 11$. If the car covers a distance of 396 km in 6 hours, what is the speed of the bus in km/h?

A. 42 ✓

B. 35

C. 38.5

D. 45.5

Q2 Mathematics

Which of the following fractions is the greatest?

A. $\frac{8}{9}$

B. $\frac{17}{20}$

C. $\frac{37}{40}$ ✓

D. $\frac{22}{25}$

Q3 Mathematics

A sum of money invested at a certain rate of compound interest per annum amounts to ₹96,800 in 2 years and to ₹1,06,480 in 3 years. Find the rate of compound interest per annum.

A. 10.5%

B. 10% ✓

C. 12%

D. 11%

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Q4 Mathematics

Manyata rowed a certain distance downstream in 2 hours while it took her 30 minutes more to row the same distance upstream. How much time will she take to make the two-way journey in still water?

A. 4:15:10 hours

B. 4:10 hours

C. 4:26:40 hours ✓

D. 4:02:20 hours

Q5 Mathematics

If $\tan\theta = \frac{\sqrt{5}}{2}$ and θ is an acute angle, find the value of $\sec\theta$.

A. $\frac{3}{2}$ ✓

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

C. 2

D. 1

Q6 Mathematics

In a school, the number of students in Grades 6, 7 and 8 was 184, 276 and 322, respectively. Students in each grade were divided into different sections, but every section across grades had the same number of students. For each section, a class teacher was appointed. What was the minimum number of class teachers required for the purpose?

A. 18

B. 46

C. 23

D. 17 ✓

Q7 Mathematics

Find the radius of a sphere having a surface area of $900\,\pi\ cm^2$.

A. 18 cm

B. 20 cm

C. 15 cm ✓

D. 12 cm

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Q8 Mathematics

If $\cos A = \frac{\sqrt{3}}{2}$, A is an acute angle, then find the value of $\frac{\tan A - \cot A}{\sqrt{3} - secA}$.

A. -2.5

B. -2 ✓

C. -3.5

D. 2.5

Q9 Mathematics

105 people could complete a work in 36 days. But after they worked together for 8 days their employer wanted that the work should be completed in a total of 29 days. How many more workers need to be employed to meet the deadline?

A. 40

B. 35 ✓

C. 28

D. 42

Q10 Mathematics

The average of five consecutive natural numbers is 12. What will be the average of the seven numbers if the next two natural numbers are also included?

A. 14

B. 13 ✓

C. 15

D. 13.5

Q11 Mathematics

Simplify: $65 - [40 - (60 \div 5 - (18 - 24 \div 4) \div 6)]$

A. 30

B. 40

C. 37

D. 35 ✓

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Q12 Mathematics

What is the measure of each interior angle of a regular octagon?

A. 140^0

B. 130^0

C. 135^0 ✓

D. 125^0

Q13 Mathematics

A sum of ₹7,500 amounts to ₹11,700 in 8 years at a certain rate of simple interest. Find the rate of interest per annum.

A. 7% ✓

B. 7.5%

C. 8%

D. 6%

Q14 Mathematics

A certain quantity of a 35% sugar solution is mixed with 8 litres of a 48% sugar solution to obtain a 40% sugar solution. How many litres of the 35% sugar solution was there in the mixture?

A. 12.8 ✓

B. 13.6

C. 13.2

D. 12.5

Q15 Mathematics

A can do a job alone in 66 days, B can do it alone in 55 days, while A, B and C working together can complete the job in 22 days. In how many days can C do the job alone?

A. 82.5 ✓

B. 85

C. 81.5

D. 84

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Q16 Mathematics

Evaluate the following:

$\sin 60^0 + \tan 30^0 + \cos 45^0$

A. $\frac{5\sqrt{2}+3\sqrt{3}}{4}$

B. $\frac{3\sqrt{2}+5\sqrt{3}}{4}$

C. $\frac{5\sqrt{2}+3\sqrt{3}}{6}$

D. $\frac{3\sqrt{2}+5\sqrt{3}}{6}$ ✓

Q17 Mathematics

Which of the following numbers is divisible by 8?

A. 12312 ✓

B. 12316

C. 12318

D. 12314

Q18 Mathematics

The perimeters of two squares differ by 48 cm. If the side of one square is four times the side of the other square, then find the area of the larger square (in cm^2).

A. 256 ✓

B. 289

C. 196

D. 225

Q19 Mathematics

In a bag full of pencils, $\frac{3}{4}$ of the pencils were coloured pencils, and $\frac{8}{15}$ of the coloured pencils were red. If there were 40 red pencils in the bag, what was the total number of pencils in the bag?

A. 100 ✓

B. 120

C. 150

D. 180

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Q20 Mathematics

The LCM of two numbers is 28 times their HCF, and the difference in the LCM and HCF is 405. If the numbers are in the ratio 4 : 7, then find the positive difference between the numbers.

A. 49

B. 45 ✓

C. 52

D. 42

Q21 Mathematics

Simplify:

$$\sqrt[6]{4096} + \sqrt[4]{4096} + \sqrt[3]{4096} + \sqrt{4096}$$

A. 92 ✓

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

C. 90

D. $\sqrt{2}$

Q22 Mathematics

The difference between the external and internal curved surface areas of a 7 cm long cylindrical metallic pipe is 110 cm^2. If the pipe is made of 302.5 cm^3 metal, then find the inner radius of the pipe.

$\left(Use\ \pi = \frac{22}{7}\right)$

A. 2.2 cm

B. 1.8 cm

C. 1.5 cm ✓

D. 1.6 cm

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Q23 Mathematics

Data was gathered from a survey as to what sport was liked by the people surveyed. The data was represented by a pie chart, and the sector representing people who liked soccer had a central angle of 54^0. What percentage of the people surveyed liked soccer?

A. 10%

B. 12.5%

C. 20%

D. 15% ✓

Q24 Mathematics

If 15% of A : 25% of B :: 8 : 11, then A : B is equal to:

A. 4 : 3

B. 33 : 32

C. 5 : 4

D. 40 : 33 ✓

Q25 Mathematics

What is the median of 5, 2, 7, 8, 1 and 4?

A. 4.5 ✓

B. 7

C. 8

D. 7.5

Q26 Mathematics

Two cylinders have the same volume, but the radius of the base of the second cylinder is 20% less than the radius of the base of the first. How much greater should the height of the second cylinder be in comparison to the height of the first?

A. 55.25%

B. 56.25% ✓

C. 56.75%

D. 55.75%

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Q27 Mathematics

The area of a trapezium is 140 cm^2 and the perpendicular distance between its parallel sides is 7 cm. If the length of one of the parallel sides is 28 cm, what is the length of the other parallel side?

A. 12 cm ✓

B. 16 cm

C. 14 cm

D. 10 cm

Q28 Mathematics

Evaluate:

$$\frac{2.91^2 - 1.09^2}{1.82}$$

A. 3

B. 2

C. 5

D. 4 ✓

Q29 Mathematics

Rohan had a cuboidal box having dimensions of 36 cm × 25 cm × 20 cm. He packed into it as many cubes as possible, each of which has edges 4 cm long. How much space will be still left in the box?

A. 720 cm^3 ✓

B. 780 cm^3

C. 680 cm^3

D. 820 cm^3

Q30 Mathematics

Find the value of k, if 18% of 450 = 30% of k.

A. 320

B. 750

C. 270 ✓

D. 250

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Q31 Mathematics

A sum of ₹22,100 was divided between Timir and Monali in such a way that if both invested their shares at 10% compound interest per annum, the amount payable on maturity to Monali after 18 years would be the same as the amount payable on maturity to Timir after 20 years. What was the share of Monali in the initial sum?

A. ₹12,180

B. ₹12,100 ✓

C. ₹12,050

D. ₹12,150

Q32 Mathematics

A batsman scored 84 runs in his 12^{th} innings, thereby improving his average score per innings by 4 runs. What is the average score per innings of the batsman after the 12^{th} innings?

A. 44

B. 40 ✓

C. 42

D. 36

Q33 Mathematics

The selling price of 32 items is equal to the cost price of 38 items. Find the profit percentage.

A. 16.25%

B. 15.79%

C. 18.75% ✓

D. 19.25%

Q34 Mathematics

Four years ago, the age of the mother was 13 times the age of her daughter. Two years hence, the mother's age will be 4 times the daughter's age. After how many years will the mother's age be 3 times that of her daughter?

A. 6 ✓

B. 4

C. 5

D. 7

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Q35 Mathematics

What will be the amount payable on maturity if ₹2,000 is invested for a period of three years at 30% p.a. interest compounded yearly?

A. ₹4,394 ✓

B. ₹4,388

C. ₹4,398

D. ₹4,384

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Mathematics 35 Questions • Answer Key

Q1 Mathematics

The compound interest on a sum of ₹1,250 for two years is ₹102 when interest is compounded annually at a certain rate per cent p.a. What is the rate of interest per annum?

A. 3.9%

B. 4.08%

C. 4% ✓

D. 3.5%

Q2 Mathematics

A car covers a certain distance at a speed of 45 km/h and returns to the starting point following the same path at a speed of 36 km/h. Find the average speed for the entire journey (in km/h).

A. 40 ✓

B. 38

C. 42

D. 35

Q3 Mathematics

Find the HCF of $3x^2yz$, $5xy^2z$, $12x^2y^2z^3$.

A. 180xyz

B. xyz ✓

C. $180x^5y^5z^5$

D. $180x^2y^2z^3$

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Q4 Mathematics

Evaluate:

$$\frac{0.4 \times 0.4 \times 0.4 + 0.05 \times 0.05 \times 0.05}{0.8 \times 0.8 \times 0.8 + 0.1 \times 0.1 \times 0.1}$$

A. $\frac{1}{7}$

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

C. $\frac{1}{8}$ ✓

D. $\frac{1}{10}$

Q5 Mathematics

Find k such that a 7-digit number 51032kk is divisible by 12.

A. 6

B. 4

C. 8 ✓

D. 2

Q6 Mathematics

Three varieties of tea, whose cost prices per kg are ₹500, ₹720 and ₹900 are blended in the ratio 9 : 5 : 11. What should be the selling price per kg of the blended tea if the seller has to make a profit of 20%?

A. ₹884

B. ₹854

C. ₹844

D. ₹864 ✓

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Q7 Mathematics

A can do 87.5% of the work in 35 days while B can do 65% of the same work in 23.4 days. If they work together, what fraction of the work will get done in 1 day?

A. $\frac{1}{19}$

B. $\frac{7}{120}$

C. $\frac{19}{360}$ ✓

D. $\frac{1}{20}$

Q8 Mathematics

The sum of the radius of the base and the height of a solid right circular cylinder is 39 cm. Its total surface area is 1716 cm^2. What is the volume (in cm^3) of the cylinder? (Take $\pi=\frac{22}{7}$)

A. 4774

B. 5082

C. 4928 ✓

D. 4620

Q9 Mathematics

Simplify the expression:

$$\frac{4^{524}-4^{522}+30}{4^{522}+2}$$

A. $\frac{25}{4}$

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

C. 30

D. 15 ✓

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Q10 Mathematics

A pipe can fill an empty tank in 12.5 hours. At the bottom of the tank there was a leakage point which can drain the completely filled tank in 17.5 hours. The leakage point could be closed after 14 hours of opening the pipe to fill the tank. What was the total time taken (in hours) to fill the tank?

A. 22.5 ✓

B. 20.5

C. 27

D. 25

Q11 Mathematics

Rachel borrowed ₹10,000 at 10% simple interest per annum. She paid back ₹3,000 after Year 1, ₹2,800 after Year 2, and the remaining amount due after Year 3. If interest was charged on reducing balance, what was the amount Rachel paid as the final instalment?

A. ₹7,200

B. ₹6,600 ✓

C. ₹4,620

D. ₹5,850

Q12 Mathematics

The ratio of the length, width and height of a cuboid is 60 : 24 : 7 and the length of each of its four space diagonals is 130 cm. What is the volume $(in\ cm^3)$ of the cuboid?

A. 86400

B. 80460

C. 84600

D. 80640 ✓

Q13 Mathematics

The difference between 8% profit and 13% loss while selling an item was ₹115.50. What was the cost price of the item?

A. ₹540

B. ₹560

C. ₹550 ✓

D. ₹580

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Q14 Mathematics

The product of 15% of A and 35% of B, when divided by 21% of C gives 37 as the answer. What will be the answer if the product of A and B is divided by C?

A. 111

B. 185

C. 148 ✓

D. 74

Q15 Mathematics

Number A is eight times as large as number B. By what percentage is number B less than number A?

A. 87.5% ✓

B. 20%

C. 80%

D. 12.5%

Q16 Mathematics

A set of four numbers that begins with the number 53 is arranged from the smallest to largest. If the median is 56, which of the following could possibly be the set of numbers?

A. 53, 55, 57, 58 ✓

B. 53, 57, 61, 65

C. 53, 56, 59, 62

D. 53, 53, 57, 59

Q17 Mathematics

On simple interest a certain sum becomes 160% of itself in 5 years at a certain rate of interest per annum. In how many years will the sum double itself under the same rate of interest?

A. 7

B. 10

C. $8\frac{1}{3}$ ✓

D. $9\frac{1}{2}$

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Q18 Mathematics

If diameter of a circle is 16 m, then what is the area of the circle?

A. $128\ \pi\ m^2$

B. $256\pi\ m^2$

C. $96\ \pi\ m^2$

D. $64\pi\ m^2$ ✓

Q19 Mathematics

A man on the top of a vertical tower observes a car moving at a uniform speed coming directly towards it. If it takes 10 minutes for the angle of depression to change from 45° to 60°, in how much time will the car reach the tower?

A. $(15+5\sqrt{3})$ minutes ✓

B. $(3+5\sqrt{3})$ minutes

C. $(15+8\sqrt{3})$ minutes

D. $(15+3\sqrt{3})$ minutes

Q20 Mathematics

The variable x takes integer values with $0 \le x \le 4$. If the frequency is given by

$f(x) = 1 + x + x(x-1) + \frac{1}{2}x(x-1)(x-2) - \frac{1}{3}x(x-1)(x-2)(x-3)$, then what is the mode of x?

A. 1

B. 3

C. 2

D. 4 ✓

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Q21 Mathematics

Travelling at $\frac{7}{8}$ of his usual speed, Ansh covered a distance of 35 km in 50 minutes. What will be Ansh's usual speed in km/h?

A. 54

B. 60

C. 48 ✓

D. 64

Q22 Mathematics

If $\sec\theta - \tan\theta = 2.5$, then what is the value of $\sec\theta$?

A. 1.30

B. 1.60

C. 1.45 ✓

D. 1.70

Q23 Mathematics

From the top of a tree 7 m high, the angle of elevation of a tower is 30^0. If the tower is 47 m high, how far away from the tower is the tree positioned?

A. $45\sqrt{3}$ m

B. 40 m

C. $15\sqrt{3}$ m

D. $40\sqrt{3}$ m ✓

Q24 Mathematics

The surface area of a sphere is 38.5 cm^2. Find the radius of the sphere. [Use $\pi = \frac{22}{7}$]

A. 1.5 cm

B. 1.8 cm

C. 1.75 cm ✓

D. 1.4 cm

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Q25 Mathematics

Simplify:

$18 + 48 \div 12 \times (32 \div 4)^2 - 8$

A. 344

B. 266 ✓

C. 242

D. 308

Q26 Mathematics

Simplify the following expression.

$0.\overline{12} - 0.\overline{6} + 0.\overline{3}$

A. $\frac{9}{100}$

B. $\frac{37}{33}$

C. $-\frac{5}{11}$

D. $-\frac{7}{33}$ ✓

Q27 Mathematics

An equilateral triangle ABC is inscribed in a circle with radius 12 cm and centre O. Find the length of each side of the triangle ABC (in cm).

A. $12\sqrt{3}$ ✓

B. $10\sqrt{5}$

C. $14\sqrt{3}$

D. $10\sqrt{3}$

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Q28 Mathematics

Two cubes, each having the length of each side as 8 cm, are joined to form a cuboid. What will be the total surface area of the cuboid?

A. $640\ cm^2$ ✓

B. $576\ cm^2$

C. $704\ cm^2$

D. $768\ cm^2$

Q29 Mathematics

Find the average of 45% of 70 and 35% of 110.

A. 34.5

B. 35 ✓

C. 37.5

D. 35.5

Q30 Mathematics

A reduction of 20% in the price of wheat enables a housewife to obtain 4 kgs more for ₹1200, what is the reduced price per kg (in ₹)?

A. 40

B. 60 ✓

C. 75

D. 50

Q31 Mathematics

48 square plates of side 2 cm are arranged in the form of a rectangle such that its sides are in the ratio 3 : 4. Find the perimeter of the rectangle (in cm).

A. 48

B. 56 ✓

C. 52

D. 58

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Q32 Mathematics

What is the value of $\sec^2 37^0 - \tan^2 37^0$?

A. 1 ✓

B. -1

C. 0

D. 2

Q33 Mathematics

What is the HCF of 875, 245 and 1225 ?

A. 105

B. 5

C. 7

D. 35 ✓

Q34 Mathematics

On compound interest, a certain sum becomes ₹19,360 after 2 years and ₹21,296 after 3 years. Find the simple interest on the same sum at the same rate of interest for 3 years.

A. ₹4,760

B. ₹4,675

C. ₹4,725

D. ₹4,800 ✓

Q35 Mathematics

The average of 25 numbers is 55. The average of first 11 numbers is 51 and the average of last 10 numbers is 56. What is the average of 66, 70 and the remaining 4 numbers out of given 25 numbers?

A. 68

B. 65 ✓

C. 66

D. 64

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Mathematics

35 Questions • Answer Key

Q1 Mathematics

The volume of a solid spherical ball was $972\pi cm^3$. It was melted and 27 identical spheres were made with the molten material, leaving no wastage. What is the total surface area of the 27 smaller spheres taken together?

A. 810π cm^2

B. 972π cm^2 ✓

C. 324π cm^2

D. 648π cm^2

Q2 Mathematics

By selling an item for ₹2,332, a person incurred a loss of 12%. What was the cost price of the item?

A. ₹2,650 ✓

B. ₹2,620

C. ₹2,675

D. ₹2,625

Q3 Mathematics

A sum of ₹10,000 was invested on compound interest in two parts. One part at 10% p.a. and the other part at 20% p.a., compounded yearly for two years. If the total amount received on maturity after two years was ₹12,928, then find the sum that was invested at 10% compound interest p.a.

A. ₹7,200

B. ₹6,000

C. ₹6,400 ✓

D. ₹6,500

Q4 Mathematics

The ratio of the number of boys to the number of girls in a school was 5 : 7. If there were 931 girls in the school, how many boys were there?

A. 705

B. 665 ✓

C. 635

D. 675

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Q5 Mathematics

A and B together can do a piece of work in 10 days. If A alone can do the same work in 15 days and C alone can do the same work in 20 days, then in how many days can B and C together do the same work?

A. $11\frac{3}{4}$

B. 11

C. 12 ✓

D. $12\frac{1}{5}$

Q6 Mathematics

The sides AB, BC, CD and DA of a quadrilateral ABCD touch a circle at P, Q, R and S, respectively. If AB = 16 cm, DS = 10 cm and RC = 3 cm, then find the perimeter of the quadrilateral ABCD (in cm).

A. 56

B. 60

C. 58 ✓

D. 55

Q7 Mathematics

The total surface area of a hemisphere is $108\pi\ cm^2$. What is the volume of the hemisphere?

A. $144\pi\ cm^3$ ✓

B. $54\sqrt{3}\pi\ cm^3$

C. $216\pi\ cm^3$

D. $108\sqrt{6}\pi\ cm^3$

Q8 Mathematics

In an election, 90% of those entitled to vote cast their ballot. 80% of the votes cast was valid. The winner got 60% of the valid votes. If the winner got 64800 votes, what was the number of people entitled to vote?

A. 175000

B. 125000

C. 150000 ✓

D. 200000

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Q9 Mathematics

12 men can build a wall in 24.5 days. How many men would be able to build five such walls in 49 days?

A. 50

B. 30 ✓

C. 28

D. 40

Q10 Mathematics

What is the LCM of 98, 28 and 112?

A. 1568

B. 392

C. 784 ✓

D. 1176

Q11 Mathematics

The central angle of the sector in a pie chart representing the number of students who walked to school measured 63^0. What is the percentage of students who walked to school?

A. 17.5% ✓

B. 18%

C. 16.5%

D. 18.5%

Q12 Mathematics

If $\sin^2 \beta - \sin 30^0 = 0$ and β is an acute angle, find the value of β.

A. 60^0

B. 0^0

C. 90^0

D. 45^0 ✓

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Q13 Mathematics

The cost of painting a cube on all the external surfaces at the rate of ₹2/cm^2 is ₹588. Find the volume of the cube (in cm^3).

A. 216

B. 274.625

C. 343 ✓

D. 512

Q14 Mathematics

The difference between the compound interest and the simple interest earned on a certain sum of money in two years at 9% interest per annum is ₹ 97.2 . Find the sum invested.

A. ₹10,000

B. ₹15,000

C. ₹12,500

D. ₹12,000 ✓

Q15 Mathematics

A train running at the speed of 95 km/h crosses a pole in 18 seconds. What is the length of the train in metres?

A. 475 m ✓

B. 465 m

C. 455 m

D. 480 m

Q16 Mathematics

A certain sum doubles itself in 8 years on simple interest per annum. Find the rate percentage of the interest.

A. 12.5% ✓

B. 11%

C. 12%

D. 11.5%

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Q17 Mathematics

Simplify:

$30 \div (40 \div 2^2 \times 10 \div 5) \times 6 - 4$

A. –3.75

B. 5 ✓

C. 300

D. 896

Q18 Mathematics

The sides of two squares are in the ratio 4 : 3 and the sum of their areas is 225 cm^2. Find the perimeter of the smaller square (in cm).

A. 48

B. 30

C. 44

D. 36 ✓

Q19 Mathematics

If the mean of numbers $33, x, 47, 83$ and 109 is 67, what is the mean of $50, 64, 100, 126$ and x?

A. 80.6 ✓

B. 80

C. 81.8

D. 84

Q20 Mathematics

Simplify the following expression.

$0.002 + 5.025 - 35.08 - 5.058$

A. –45.165

B. –35.111 ✓

C. 35.111

D. 45.165

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Q21 Mathematics

In a blend of apple juice and orange juice, 20% was apple juice. In another blend of the two juices, 30% was orange juice. The two blends are mixed in a certain ratio so that the ratio of apple juice and orange juice in the mix was 4 : 3. Find the ratio of the first blend and the second blend, in that order, in the final mix.

A. 10 : 29

B. 9 : 26 ✓

C. 2 : 7

D. 5 : 14

Q22 Mathematics

If the difference between the mean and the mode of certain observations is 69, then the difference between the mean and the median is _____.

A. 24

B. 21

C. 23 ✓

D. 22

Q23 Mathematics

At a certain rate of simple interest per annum a sum of money amounts to $\frac{13}{8}$ of itself in 10 years. What is the rate of simple interest per annum?

A. 6.25% ✓

B. 7.5%

C. 5%

D. 7.25%

Q24 Mathematics

Which of the following numbers is NOT divisible by 8?

A. 35552

B. 35792

C. 35112

D. 35412 ✓

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Q25 Mathematics

$\frac{7}{18}$ of the balls in a drum were red, $\frac{8}{15}$ of the balls in the drum were blue and the rest were yellow. If there were 84 more red balls in that drum than there were yellow balls, what was the total number of balls in the drum?

A. 180

B. 90

C. 270 ✓

D. 360

Q26 Mathematics

Evaluate:

$\sqrt[3]{16384} \div \sqrt[3]{256}$

A. 6

B. 4 ✓

C. 2

D. 3

Q27 Mathematics

The area of a rectangle whose length and width are in the ratio $9 : 5$ is given as $180\ cm^2$. Find the perimeter of the rectangle.

A. 56 cm ✓

B. 42 cm

C. 54 cm

D. 70 cm

Q28 Mathematics

The average spending of a family per week during a four-week period on essentials items was ₹1,475. During the first three weeks the family spent ₹1,200, ₹1,500 and ₹1,875 on such items. How much did the family spend on these items in the final week to ensure that the weekly average is maintained?

A. ₹1,325 ✓

B. ₹1,225

C. ₹1,275

D. ₹1,375

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Q29 Mathematics

The HCF of two different numbers is always 1, when:

A. one number is odd and the other number is even

B. both numbers are prime numbers ✓

C. both numbers are even numbers

D. both numbers are odd numbers

Q30 Mathematics

If $(y + z) = 8$ and $yz = 6$, find the value of $(y - z)^2$.

A. 40 ✓

B. 44

C. 49

D. 36

Q31 Mathematics

If three solid gold spherical beads of radii 6 cm, 8 cm, and 10 cm, respectively are melted into one spherical bead, then what is the radius (in cm) of the larger bead?

A. 13 cm

B. 15 cm

C. 12 cm ✓

D. 16 cm

Q32 Mathematics

The angle of elevation of an aeroplane from a point on the ground is 45°. After a flight of 12 seconds horizontally, the angle of elevation changes to 30°. If the aeroplane is flying at a height of 2400 m, then find the speed of the aeroplane (in km/h).

A. $72(1 + \sqrt{3})$

B. $720(\sqrt{3} + 1)$

C. $720(\sqrt{3} - 1)$ ✓

D. $72(\sqrt{3} - 1)$

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Q33 Mathematics

A train covered a certain distance at a uniform speed. If the train had been 12 km/h faster, it would have taken 8 hours less than the scheduled time. If the train were slower by 12 km/h, the train would have taken 12 hours more than the scheduled time. Find the length of the journey (in km).

A. 1440

B. 2860

C. 2880 ✓

D. 1480

Q34 Mathematics

If $x\,(x + y + z) = 30, y\,(x + y + z) = 64, z\,(x + y + z) = 50$, then find the value of $2(x + y + z)$, where $x, y, z > 0$.

A. 20

B. 22

C. 24 ✓

D. 26

Q35 Mathematics

Suhas travelled by train to cover $\frac{5}{12}$ of the journey, and then traveled by bus to cover $\frac{1}{3}$ of the journey. After that he travelled the remaining 36 km on a bicycle. How much in all did Suhas travel?

A. 168 km

B. 132 km

C. 150 km

D. 144 km ✓

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Q1 Mathematics

A sum increases by 75% in 10 years at certain rate of simple interest per annum. By what percentage will the same sum increase in 6 years at the same rate of simple interest per annum?

A. 42%

B. 45% ✓

C. 48%

D. 38%

Q2 Mathematics

ABCD is a rectangle with AB = 10 cm and BC = 8 cm. O is the centre of a circle touching the three sides AB, BC and CD of the rectangle ABCD. Find the area (in cm^2) of $\triangle OBC$.

A. 22

B. 20

C. 16 ✓

D. 24

Q3 Mathematics

If $0.17y = 10.2$, find the value of y.

A. 0.6

B. 6

C. 600

D. 60 ✓

Q4 Mathematics

Find the value of $\sqrt{2k + 11}$, where k is average of 16, 25, 13, 26 and 15.

A. 9

B. 7 ✓

C. 10

D. 8

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Q5 Mathematics

The ratio between the marked price and the cost price of an article is 5 : 3. If the selling price of the article is ₹3,024 and the shopkeeper gave two successive discounts of 16% and 20%, then how much is the profit or loss (in ₹)?

A. Profit, ₹324 ✓

B. Profit, ₹225

C. Loss, ₹112

D. Loss, ₹216

Q6 Mathematics

If $3x + 2y = 13$ and $y^2 - 4y + 4 = 0$, then find (x,y)

A. $(4, 2)$

B. $(5, -1)$

C. $(3, 2)$ ✓

D. $(2, 3)$

Q7 Mathematics

The outer radius of a spherical shell is 9 cm and the thickness of the shell is 1 cm. Find the volume of the metal used for the shell (in cubic cm).

$\left(Use\ \pi = \frac{22}{7}\right)$

A. $909\frac{3}{5}$

B. $915\frac{1}{3}$

C. $909\frac{1}{3}$ ✓

D. $912\frac{2}{3}$

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Q8 Mathematics

P, Q, R can do a piece of work in 40 days, 90 days and 36 days, respectively. P started the work. Q joined him after 7 days. If R joined them after 8 days from the beginning, then for how many days did R work?

A. $15\frac{8}{23}$

B. $12\frac{8}{23}$ ✓

C. $13\frac{8}{23}$

D. $11\frac{8}{23}$

Q9 Mathematics

The radius of the base of a conical tent is 9 m and its height is 12 m, find the cost of the material needed to make it if it costs ₹100 *per* $\pi\ m^2$.

A. ₹14,500

B. ₹13,000

C. ₹15,000

D. ₹13,500 ✓

Q10 Mathematics

Five years ago, ages of father and his son were in the ratio 7:2. Five years hence, ages of the father and his son will be in the ratio 9:4. After how many years will the father's age be twice the age of his son?

A. 12

B. 9

C. 8

D. 10 ✓

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Q11 Mathematics

Simplify the following expression.

$$\frac{12-6\div2+4}{3^2\times3-7+6}$$

A. $\frac{13}{18}$

B. $\frac{1}{2}$ ✓

C. $\frac{11}{18}$

D. $\frac{11}{26}$

Q12 Mathematics

If $\frac{1}{1+\tan\theta}+\frac{1}{1-\tan\theta}=4$, $0°<\theta<90°$, then

what is the value of $(\text{cosec}^2\theta + \sec^2\theta)$

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

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

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

D. $\frac{9}{2}$ ✓

Q13 Mathematics

If $y = \sqrt[3]{6} - 4$, then what is the value of $y^3 + 12y^2 + 48y + 100$?

A. 6

B. 0

C. 106

D. 42 ✓

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Q14 Mathematics

What is the time taken by a 450 m long train running at 54 km/h to cross a man standing on a platform?

A. 30 seconds ✓

B. 32 seconds

C. 28 seconds

D. 25 seconds

Q15 Mathematics

If 23.5% of a number is 11.75, then what is the number?

A. 40

B. 50 ✓

C. 48

D. 60

Q16 Mathematics

The difference between the interest payable on a sum invested for three years at 20% compound interest per annum compounded annually and 20% simple interest per annum for the same period is ₹448. What is the value of the sum invested?

A. ₹3,750

B. ₹3,000

C. ₹4,000

D. ₹3,500 ✓

Q17 Mathematics

One-seventh of a 2-digit number is 15 less than half of the number. What is the sum of the digits of the 2-digit number?

A. 7

B. 8

C. 6 ✓

D. 5

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Q18 Mathematics

Find the HCF of 245, 175 and 385.

A. 5

B. 35 ✓

C. 25

D. 7

Q19 Mathematics

The mean of the observations 29, 36, 21, 18, 7, 19, k, k is 21.25 and the mode of the observations 29, 22, 15, 15, 22, 18, 21, p, p is 29. Find the value of (p – k).

A. 10

B. 11

C. 12

D. 9 ✓

Q20 Mathematics

If $\frac{2}{3}$ of y = $\frac{8}{15}$ of z, then find y : z.

A. 3 : 5

B. 21 : 25

C. 16 : 45

D. 4 : 5 ✓

Q21 Mathematics

Simplify:

$72 - 4(40 + 24 \div 8 \times 6 - 4 \times 4) + 20$

A. −76 ✓

B. 52

C. −36

D. −6

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Q22 Mathematics

Ram gave a discount of 10% on the marked price of an item and still gained 12.5%. How much would have Ram gained, if he sold the item at the marked price?

A. 27.5%

B. 25% ✓

C. 22.5%

D. 20%

Q23 Mathematics

AB and CD are parallel tangents to a circle with centre O. Points P and Q are on AB and CD, respectively, such that PQ touches the circle at R. Find the measure of $\angle POQ$.

A. 90° ✓

B. 100°

C. 80°

D. 85°

Q24 Mathematics

Out of a total sum of ₹5,000, Danish invested one part at 12% simple interest per annum and the remaining part at 10% simple interest per annum. If the total interest that accrued to Danish in two years equals ₹, 1072, what was the sum Danish invested at 12% simple interest per annum?

A. ₹1,750

B. ₹2,150

C. ₹1,800 ✓

D. ₹2,000

Q25 Mathematics

The circumference of a circle is given as 308 m. What is the area of the circle?

[Use $\pi = \frac{22}{7.}$]

A. $7546\ m^2$ ✓

B. $7646\ m^2$

C. $7556\ m^2$

D. $7446\ m^2$

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Q26 Mathematics

A right circular cone is surmounted on a hemisphere. Base radius of the cone is equal to radius of the hemisphere. The diameter of the hemisphere is 12 cm while the height of the cone is 8 cm. Find the cost of painting the compound object if it costs ₹25 to paint π cm^2.

A. ₹6,930

B. ₹10,371

C. ₹4,500

D. ₹3,300 ✓

Q27 Mathematics

If $56 \div 14 \times 2^2 - 12 \times 6 \div 3 + 10 = z$, then find the value of z.

A. 4

B. 2 ✓

C. 6

D. 3

Q28 Mathematics

What is the difference in the mode and the mean of the observations?

4, 5, 6, 7, 8, 12, 9, 12, 5, 12

A. 4.6

B. 4.2

C. 4 ✓

D. 5.1

Q29 Mathematics

A person covers a certain distance at a certain speed. If he increases his speed by 30%, then he takes 15 minutes less to cover the same distance. Find the time taken by him to cover the distance when travelling at his original speed.

A. 1hour 12 minutes

B. 1 hour 10 minutes

C. 1 hour 05 minutes ✓

D. 1 hour

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Q30 Mathematics

If $2\sin y + \cos y = \sqrt{5}\sin y$, then find the value of $\tan y$.

A. $\sqrt{5} + 1$

B. $\sqrt{5} - 1$

C. $\sqrt{5} - 2$

D. $\sqrt{5} + 2$ ✓

Q31 Mathematics

Find the value of the expression:

$$1 - \frac{(4 \div 5 - 1 \times 3 + 2) \times 8}{3^2 \times 8 - 4 \times 2}$$

A. $\frac{41}{40}$ ✓

B. $\frac{39}{40}$

C. $\frac{5}{8}$

D. 0

Q32 Mathematics

A man can do a work in 20 days and a woman can do the same work in 30 days. In how many days will 2 men and 3 women do the work?

A. 4

B. 5 ✓

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

D. 6

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Q33 Mathematics

The average of 30 numbers is 55. The average of the first 15 numbers is 51 and the average of the last 12 numbers is 56. What is the average of 68, 74 and the remaining 3 numbers?

A. 71 ✓

B. 72.2

C. 72

D. 70

Q34 Mathematics

K is the product of the greatest and the smallest of the numbers

$\frac{1}{4}, \frac{2}{3}, \frac{4}{5}, \frac{5}{8}, \frac{3}{4}$. Find the value of $\left(\frac{1}{K}+4\right)\left(\frac{1}{K}-2\right)$

A. $\frac{171}{25}$

B. $\frac{189}{25}$

C. 7

D. 27 ✓

Q35 Mathematics

A certain sum on compound interest becomes ₹56,180 when compounded annually after 2 years and ₹59,550.80 after 3 years. Find the sum (in ₹).

A. 50,000 ✓

B. 48,700

C. 45,000

D. 52,500

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Mathematics

35 Questions • Answer Key

Q1 Mathematics

When $k > 0$, is subtracted from each of 11, 15, 20 and 30, the numbers so obtained in this order are in proportion. What is the mean proportional between $(2k + 2)$ and $3k^2$?

A. 22

B. 32

C. 30 ✓

D. 18

Q2 Mathematics

Avra travels from A to B at 74 km/h and returns from B to A through the same route at 111 km/h. What was his average speed during the two-way journey?

A. 92.5 km/h

B. 90 km/h

C. 88.8 km/h ✓

D. 87.5 km/h

Q3 Mathematics

Kiran got married 20 years ago. Today Kiran's age is $\frac{11}{7}$ times of his age at the time of his marriage. What will Kiran's age be ten years from now?

A. 45 years

B. 65 years ✓

C. 70 years

D. 55 years

Q4 Mathematics

A certain sum is invested on compound interest at 18% per annum for 1 year 4 months, the interest being compounded 8-monthly. If the compound interest is ₹3,816, then find the sum (in ₹).

A. 14,580

B. 15,500

C. 14,800

D. 15,000 ✓

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Q5 Mathematics

Find the greatest value of (a + b) such that an 8-digit number 4523a60b is divisible by 15.

A. 9

B. 15

C. 11

D. 13 ✓

Q6 Mathematics

If $x = \frac{2+\sqrt{3}}{2-\sqrt{3}}$, then the value of $(x-7)^2$ is

A. $4\sqrt{3}$

B. $2\sqrt{3}$

C. 24

D. 48 ✓

Q7 Mathematics

Find the greatest value of k for which the 6-digit number 24312k is divisible by 6.

A. 0

B. 8

C. 6 ✓

D. 4

Q8 Mathematics

The sum of two numbers is 72. If the numbers are in the ratio 3 : 5, then find the positive difference between the two numbers.

A. 18 ✓

B. 15

C. 14

D. 20

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Q9 Mathematics

A dealer sells an article at ₹403.20, after offering a discount of 16% on its marked price. Had he not offered any discount, he would have earned a profit of 28% on the cost price of the article. What is the cost price (in ₹) of the article?

A. 400

B. 480

C. 375 ✓

D. 350

Q10 Mathematics

A purchased an item for ₹12,300. He spent ₹200 as cartage. He sold it to B at 10% profit, who sold it to C at 6% profit. C marked it at ₹2,915 higher than his cost price and allowed 10% discount to a customer. Find the profit earned by C (in ₹).

A. 1,170

B. 1,166 ✓

C. 1,172

D. 1,160

Q11 Mathematics

From a rectangular metallic sheet of length 36 cm and breadth 16 cm, three circular plates of radii 6 cm, 4 cm and 2 cm are cut out. If the area of the remaining part of the metallic sheet is equal to the area of a square, then find the length of each side of the square (in cm).

$\left(Use\ \pi = \frac{22}{7}\right)$

A. 20 ✓

B. 18.6

C. 18

D. 19.4

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Q12 Mathematics

A man on a cliff observes a boat at an angle of depression of 30°, which is approaching the shore to a point exactly beneath the observer, at a uniform speed. Ten minutes later, the angle of depression of the boat is found to be 60°. Find the total time taken by the boat to reach the shore.

A. 15 minutes ✓

B. 16 minutes

C. 18 minutes

D. 14 minutes

Q13 Mathematics

PQRS is a cyclic quadrilateral in a circle with centre O. $\angle PQR$ *and* $\angle PSR$ are in the ratio 11 : 7. If PQ = QR, then find. $\angle OPQ$

A. $62°$

B. $56°$

C. $52°$

D. $55°$ ✓

Q14 Mathematics

One-eighth of a number is 12 less than half of 42. Find one-fourth of the number.

A. 72

B. 20

C. 18 ✓

D. 25

Q15 Mathematics

From the top of the tower of 30 m height, a man is observing a kid playing on the ground at an angle of depression of 30 degrees. Find the distance between the foot of the tower and the kid.
(Height of man and kid are to be ignored for calculation)

A. $52\sqrt{3}$ m

B. 53 m

C. $30\sqrt{3}$ m ✓

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

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Q16 Mathematics

A and B undertake to do a piece of work for ₹18,750. A can do it in 20 days and B can do it in 30 days. With the help of C, they finished it in 8 days. How much C should be paid for his work in proportion?

A. ₹6,500

B. ₹7,500

C. ₹6,250 ✓

D. ₹5,000

Q17 Mathematics

A sum of ₹7800 amounts to ₹10381.80 at x% p.a. in 2 years when the interest is compounded 8-monthly. What will be the compound interest on the same sum at $(x + 5)$% p.a. in one year, if the interest is compounded half yearly?

A. ₹1560

B. ₹1654

C. ₹1660

D. ₹1638 ✓

Q18 Mathematics

If the median of $a, \frac{a}{2}, \frac{2a}{3}, \frac{a}{4}, \frac{3a}{5}$ is 6, then what is the value of a where a is natural number?

A. 12

B. 10 ✓

C. 9

D. 11

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Q19 Mathematics

In a school there are 360, 520 and 280 students in classes 5, 6 and 7 respectively. Buses are to be hired to take these students for a trip. Find the maximum number of students who can be accommodated in each bus if each bus must take same number of students, and each bus should have students from the same class.

A. 40 ✓

B. 20

C. 50

D. 30

Q20 Mathematics

Find the value of the expression $81^{0.16} \times 3^{0.36}$.

A. 2.56

B. 0.13

C. 3 ✓

D. 1

Q21 Mathematics

The radius of a sphere and the base radius of cone both are equal to $3\sqrt{2}$ cm. If the surface area of the sphere is the same as the total surface area of the right circular cone, then what is the height of the cone?

A. $12\ cm$ ✓

B. $8\sqrt{2}cm$

C. $8\ cm$

D. $9\sqrt{2}cm$

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Q22 Mathematics

Pipe A can fill 50% of a tank in 4 hours and pipe B can completely fill the same tank in 12 hours. If both the pipes are opened at the same time, then in how much time will the empty tank be completely filled?

A. 4 hours 48 minutes ✓

B. 4 hours 55 minutes

C. 4 hours 40 minutes

D. 4 hours 52 minutes

Q23 Mathematics

The mean of a certain number of observations is 12. If one observation is removed and the mean remains unaltered, then the removed observation is:

A. 13

B. 12 ✓

C. 10

D. 11

Q24 Mathematics

The simple interest on a certain sum for $3\frac{1}{3}$ years at 15% p.a. is ₹1,840 less than the simple interest on the same sum for $5\frac{1}{2}$ years at 12% p.a. The sum is:

A. ₹11,500 ✓

B. ₹13,500

C. ₹10,105

D. ₹12,500

Q25 Mathematics

If the square of a positive number is 6 more than five times the number, what is the number?

A. 8

B. 6 ✓

C. 5

D. 9

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Q26 Mathematics

If the main diagonal of a cube is 12 cm long, then find the volume of the cube.

A. $192\sqrt{3}\ \text{cm}^3$ ✓

B. $64\sqrt{3}\ \text{cm}^3$

C. $192\ \text{cm}^3$

D. $128\sqrt{3}\ \text{cm}^3$

Q27 Mathematics

The amount payable on maturity after $5\frac{1}{2}$ years on a sum of ₹4,750, when invested at a certain rate per cent of simple interest per annum, was ₹6,840. What was the per annum per cent rate of simple interest paid?

A. 8% ✓

B. 8.5%

C. 7.5%

D. 9%

Q28 Mathematics

The average of 25 numbers is 48.2. If the average of the first 10 numbers is 47 and the average of the last 12 numbers is 49, then find the average of 58, 69 and the remaining numbers.

A. 54.8 ✓

B. 53.7

C. 55.9

D. 52

Q29 Mathematics

A person can row at a speed of 11 km/h in still water. The speed of the stream is $\frac{5}{6}$ m/s. How much time will he take to row a distance of 36 km upstream?

A. 4 hrs 30 min ✓

B. 4 hrs 20 min

C. 4 hrs 36 min

D. 4 hrs 15 min

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Q30 Mathematics

Simplify the expression. $95 \div 15 - 34 \div \{18 - 4 \div (3 \times 12) \times 9\} \times 2$

A. $-\frac{95}{986}$

B. $2\frac{1}{3}$ ✓

C. $2\frac{5}{9}$

D. $5\frac{1}{3}$

Q31 Mathematics

The length of the base of a triangle is 6 cm more than the corresponding altitude. If the area of the triangle is 108 cm^2, find the length of the base of the triangle.

A. 12 cm

B. 27 cm

C. 18 cm ✓

D. 9 cm

Q32 Mathematics

Which of the given fractions is less than $\frac{1}{2}$?

A. $\frac{8}{15}$

B. $\frac{15}{31}$ ✓

C. $\frac{11}{21}$

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

Q33 Mathematics

Simplify the expression. $\sqrt{0.25} + 2\sqrt{0.0049} - 0.3\sqrt{0.09}$

A. 0.1

B. 5.05

C. 0.55 ✓

D. 2.73

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Q34 Mathematics

What is the volume of a hemisphere having radius 3 cm?

A. $27\pi\ cm^3$

B. $18\pi\ cm^3$ ✓

C. $36\pi\ cm^3$

D. $9\pi\ cm^3$

Q35 Mathematics

Renu's marks were wrongly entered as 99 in place of 9. Due to this error, the average marks of the class were 2.25 more than the actual average. What is the number of students in the class?

A. 42

B. 40 ✓

C. 38

D. 36

Blackbook

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