



RRB NTPC UG 2024

Under Graduate Level · CEN 06/2024 · Mathematics · Question Paper Compilation

English

All 57 Shifts (Sets) · Mathematics Section · Official Answer Key

About this Compilation

This booklet compiles all **57 shift papers** of the **RRB NTPC UG 2024 CBT 1** examination (CEN 06/2024) in **English** (**Mathematics** section only), with the correct option marked as per the official answer key.

✓ Correct option (highlighted green)

How to use

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

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Mathematics

30 Questions • Answer Key

Q1 Mathematics

If the third proportional of 16 and 56 be x , then what is the value of x ?

A. 195

B. 198

C. 196



D. 193

Q2 Mathematics

Which of the following numbers divides 545714151?

A. 10

B. 7

C. 6

D. 3



Q3 Mathematics

A number, when increased by 100%, gives 2820. The number is:

A. 1410



B. 2820

C. 705

D. 4230

Q4 Mathematics

Varun bought some erasers at the rate of ₹150/dozen. He sold them for ₹18 each. His profit percentage is ____%.

A. 42

B. 48

C. 44



D. 46

Q5 Mathematics

What is the median of the following data?

76, 35, 42, 49, 95, 21, 68, 41, 20, 27, 17

A. 40.5

B. 41



C. 41.5

D. 42

Q6 Mathematics

If 3 times Mary's present age is 20 years more than 5 times Diya's present age, and 2 times Diya's present age is 2 years less than Mary's present age, then what is the difference (in years) between the ages of Mary and Dia?

A. 12

B. 16



C. 15

D. 11

Q7 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 16^\circ$. E is a point on BC such that $\angle CAE = 51^\circ$. What is the measure of $\angle AEB$?

A. 125° B. 135° C. 139° D. 113°

Q8 Mathematics

Which of the following numbers divides 774359327?

A. 12

B. 7



C. 2

D. 16

Q9 Mathematics

Arjun and Malaika have to travel from Delhi to Kanpur in their respective cars. Arjun is driving at 138 km/hr while Malaika is driving at 92 km/hr. Find the time taken by Malaika to reach Kanpur if Arjun takes 8 hours.

A. 13 hours

B. 7 hours

C. 12 hours



D. 4 hours



Q10 Mathematics

A sector is formed by a circular arc with a radius of 9 cm, subtending an 18° angle at the centre. What is its perimeter?

(Use $\pi = 3.14$) (Rounded up to two decimal places.)

A. 22.46 cm

B. 20.83 cm

C. 24.14 cm

D. 18.38 cm

Q11 Mathematics

The cost of 8 pens and 10 pencils is ₹132. If the cost of a pen decreases by ₹2 and the cost of a pencil increases by ₹7, then the cost of 17 pens and 6 pencils is ₹136. What is the original cost of 12 pens and 9 pencils?

A. ₹138

B. ₹143

C. ₹136

D. ₹135

Q12 Mathematics

What sum of money (in ₹) will amount to ₹2,400 at 4% per annum simple interest in 5 years?

A. ₹12,000

B. ₹2,000

C. ₹2,050

D. ₹1,950

Q13 Mathematics

Find the value of $62^3 \div 62^2 \times 62^{-13}$.

A. 62^{-18}

B. 62^{-23}

C. 62^{-12}

D. 62^{-26}

Q14 Mathematics

The number of prime numbers lying between 331 and 345, both included, is:

A. 2

B. 5

C. 4

D. 3

Q15 Mathematics

The LCM of the numbers 15.4 and 0.006 is:

A. 0.462

B. 46.2

C. 4.62

D. 462

Q16 Mathematics

A jacket is marked at ₹4,000. During a festive sale, it is given two successive discounts of 32% and 22%. What is the final price after both discounts, and what is the effective percentage discount?

A. ₹1,840 ; 54%

B. ₹2,352.2 ; 44.23%

C. ₹2,121.6 ; 46.96%

D. ₹1,820 ; 49%

Q17 Mathematics

In covering a distance of 150 km, Pranay takes 2 hours more than Aman. If Pranay doubles his speed, then he would take 3 hours less than Aman. Pranay's speed is:

A. 11 km/hr

B. 20 km/hr

C. 15 km/hr

D. 6 km/hr

Q18 Mathematics

Find a single discount equivalent to successive discounts of 20%, 25% and 15%.

A. 44%

B. 42%

C. 49%

D. 46%

Q19 Mathematics

₹75,400 were divided among A, B and C, such that 3 times the share of A = 9 times the share of B = 4 times the share of C. Find the share of A.

A. ₹36,236

B. ₹36,192

C. ₹36,032

D. ₹36,127



Q20 Mathematics

In an election between two candidates, 85% of the registered voters cast their vote and 4% of the votes polled were found invalid. The winning candidate got 65% of the valid votes and won the election by a margin of 2142 votes. How many voters were registered?

A. 8751

B. 8747

C. 8750



D. 8752

Q21 Mathematics

The average runs scored by a batsman in 23 matches is 41. In the next 10 matches, the batsman scored an average of 16 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

A. 35.42

B. 34.42

C. 33.42



D. 32.42

Q22 Mathematics

Sanjana, Kartik and Deepa invested ₹1,050, ₹1,320 and ₹1,730, respectively to start a business. If the profit at the end of the year is ₹1,230, what is Deepa's share of the profit?

A. ₹517

B. ₹520

C. ₹519



D. ₹516

Q23 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 6.75% per annum rate of interest deposited on 25 February 2024 and withdrawn on 26 April 2024.

A. ₹43

B. ₹45



C. ₹46

D. ₹44

Q24 Mathematics

The value of $\sqrt{169} + \sqrt{0.0144} - \sqrt{5.76}$ is _____.

A. 10.72



B. 15.09

C. 15.76

D. 9.35

Q25 Mathematics

Find the circumference (in m) of the largest circle that can be drawn completely inside a rectangle whose dimensions are given as 14 m and 116 m.

(Take $\pi = \frac{22}{7}$.)

A. 36

B. 47

C. 37

D. 44



Q26 Mathematics

A can lay railway track between two given stations in 22 days and B can do the same job in 11 days. With the help of C, they did the job in 5 days only. Then, C alone can do the job in

A. $21\frac{5}{7}$ days

B. $15\frac{5}{7}$ days



C. $12\frac{5}{7}$ days

D. $16\frac{5}{7}$ days

Q27 Mathematics

A trader claims to sell flour at a profit of 47%, but also dishonestly uses a weight which is 8% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 60%



B. 61%

C. 65%

D. 55%

Q28 Mathematics

Priya can do a certain piece of work in 26 days. Priya and Varsha can together do the same work in 13 days, and Priya, Varsha and Nisha can do the same work together in 10 days. In how many days can Priya and Nisha do the same work together?

A. $\frac{73}{5}$

B. $\frac{71}{4}$

C. $\frac{56}{6}$

D. $\frac{65}{4}$



Q29 Mathematics

If $\frac{(\sin\theta + \cos\theta)}{(\sin\theta - 4\cos\theta)} = 11$, then the value of $\frac{(13\sin^2\theta + 3\cos^2\theta - 3)}{\cos^2\theta}$ is

A. $\frac{471}{2}$

B. 15

C. $\frac{405}{2}$



D. $\frac{19}{2}$

Q30 Mathematics

Simplify: $3\left(\left(\frac{7}{3}\right)x^2 - 27x + 14\right) - 7(x^2 + 8x - 11)$

A. $137x - 119$

B. $137x + 119$

C. $-137x + 119$



D. $-137x - 119$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

By selling 6 rubber-bands for a rupee, a man loses 40%. To gain 20% how many must he sell for a rupee?

A. 2

B. 3



C. 5

D. 4

Q2 Mathematics

Which of the following numbers is divisible by 24?

A. 7132978

B. 6830904



C. 7991987

D. 7340390

Q3 Mathematics

Ram went to a shop and observed that the list price of a fan is ₹3,600. If the retailer has bought the fan for ₹2,800, then find the trade discount (correct to one decimal place).

A. 19.8%

B. 24.6%

C. 22.2%



D. 20%

Q4 Mathematics

A number, when increased by 100%, gives 2780. The number is:

A. 4170

B. 1390



C. 2780

D. 695

Q5 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 7.5% per annum rate of interest deposited on 7 February 2024 and withdrawn on 8 April 2024.

A. 50



B. 48

C. 49

D. 51

Q6 Mathematics

Anubhav and Gaurav start a business. Anubhav invests ₹55,000 more than Gaurav for 2 months and Gaurav invests for 5 months. Anubhav's share is ₹1,431 more than that of Gaurav, out of a total profit of ₹7,155. Find the capital contributed by Anubhav.

A. ₹90,000

B. ₹70,000

C. ₹75,000



D. ₹80,000

Q7 Mathematics

Ishaan and Meghna have to travel from Delhi to Kanpur in their respective cars. Ishaan is driving at 77 km/hr while Meghna is driving at 33 km/hr. Find the time taken by Meghna to reach Kanpur if Ishaan takes 12 hours.

A. 29 hours

B. 34 hours

C. 28 hours



D. 33 hours

Q8 Mathematics

In covering a distance of 182 km, Salaj takes 4 hours more than Kevin. If Salaj doubles his speed, then he would take 9 hours less than Kevin. Salaj's speed is:

A. 3 km/hr

B. 11 km/hr

C. 7 km/hr



D. 13 km/hr

Q9 Mathematics

Given that $149^{0.59} = x$, $149^{0.94} = y$ and $x^z = y^6$, then the value of z is close to:

A. 11.02

B. 9.56



C. 7.39

D. 9.29



Q10 Mathematics

The number of prime numbers lying between 303 and 311, both included, is:

A. 5

B. 7

C. 2



D. 3

Q11 Mathematics

In an election between two candidates, 80% of the registered voters cast their vote and 5% of the votes polled were found invalid. The winning candidate got 75% of the valid votes and won the election by a margin of 1805 votes. How many voters were registered?

A. 4748

B. 4751

C. 4750



D. 4749

Q12 Mathematics

If 3 times the mother's age is 26 years more than 5 times her daughter's age, and 2 times the daughter's age is 2 years less than the mother's age, then what is the difference (in years) between the ages of the mother and the daughter?

A. 23

B. 22



C. 20

D. 25

Q13 Mathematics

The LCM of the numbers 2.7 and 0.096 is:

A. 21.6



B. 216

C. 0.216

D. 2.16

Q14 Mathematics

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 73 kg and 38 kg is:

A. 53.2

B. 52.2

C. 50.2

D. 51.2

**Q15 Mathematics**

X, Y and Z invested a sum in the ratio of 86 : 60 : 24, respectively. If they earned a total profit of ₹4,590 at the end of the year, what is the difference between the shares of Y and Z?

A. ₹972



B. ₹994

C. ₹1,065

D. ₹864

Q16 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 3% per month for 12 months.

A. ₹432



B. ₹72

C. ₹36

D. ₹56

Q17 Mathematics

The product of two consecutive natural numbers is 210. The greater of the two numbers is:

A. 7

B. 34

C. 15



D. 21

Q18 Mathematics

The average of first 151 even numbers is

A. 152.5

B. 151.5

C. 152



D. 153

Q19 Mathematics

Find the mean proportional of 25 and 16.

A. 22

B. 18

C. 20



D. 17



Q20 Mathematics

Naman and Omar can complete a certain piece of work in 13 and 4 days, respectively. They started to work together, and after 2 days, Omar left. In how many days will Naman complete the remaining work?

- A. 6
- B. 6.5
- C. 5
- D. 4.5

**Q21 Mathematics**

The H.C.F. and the L.C.M. of two numbers are 2 and 492, respectively. If one of the numbers is 82, find the other one.

- A. 102
- B. 93
- C. 12
- D. 31

**Q22 Mathematics**

A product is sold for ₹3,400 after a 15% discount. What was the original marked price?

- A. ₹3,900
- B. ₹4,100
- C. ₹4,000
- D. ₹3,800

**Q23 Mathematics**

An exterior angle and an interior angle of a regular polygon are in the ratio of 1 : 8. What is the number of sides of the polygon?

- A. 18
- B. 12
- C. 24
- D. 6

**Q24 Mathematics**

Find the value of: $83^{-6} \div 83^{16} \times 83^{-8}$

- A. 83-40
- B. 83-26
- C. 83-20
- D. 83-30

**Q25 Mathematics**

The volume of a right circular cylinder is 8624 cm^3 . If the radius and height of the cylinder are equal, then find the height of the cylinder. (Use $\pi = \frac{22}{7}$)

- A. 13 cm
- B. 15 cm
- C. 12 cm
- D. 14 cm

**Q26 Mathematics**

By selling an article at $\frac{2}{5}$ of its actual selling price, Manav incurs a loss of 24%.

If he sells it at 88% of its actual selling price, then the profit percentage is:

- A. 67.3%
- B. 67.9%
- C. 67.2%
- D. 69.4%



Q27 Mathematics

Pipe A can fill a tank in 16 hours, pipe B can fill the same tank in 25 hours and pipe C can fill the same tank in 12 hours. The time taken by them to fill the same tank if they operate together is::

A. $9\frac{85}{223} \text{ hours}$

B. $3\frac{85}{223} \text{ hours}$

C. $1\frac{85}{223} \text{ hours}$

D. $5\frac{85}{223} \text{ hours}$ ✓

Q28 Mathematics

Simplify the following.

$$2\left(\left(\frac{4}{2}\right)x^2 - 21x + 15\right) - 4(x^2 + 5x - 15)$$

A. $62x - 90$

B. $-62x - 90$

C. $-62x + 90$ ✓

D. $62x + 90$

Q29 Mathematics

Find the volume (in cm^3) of a sphere having a diameter of 22 cm, giving your answer correct to two places of decimal.

Take $\pi = \frac{22}{7}$.

A. 5577.52 ✓

B. 5587.52

C. 5567.52

D. 5597.52

Q30 Mathematics

If $\sin\theta = \frac{1}{2}$, then $13 \times \operatorname{cosec}^2\theta - 3 \times \cot^2\theta - 15$ is equal to:

A. 26

B. 28 ✓

C. 56

D. 68



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Which of the following ratios is the greatest?

A. 42 : 70

B. 40 : 51



C. 22 : 76

D. 44 : 74

Q2 Mathematics

A shirt is marked at ₹900. After a discount of 10%, it is sold. Find the selling price.

A. ₹800

B. ₹820

C. ₹810



D. ₹850

Q3 Mathematics

Sapna invested ₹20,900 on simple interest, partly at 10% per annum and partly at 9% per annum. If she earns equal interests from the two investments after 5 years, then find the sum invested at 10% per annum (in ₹).

A. 9,899

B. 9,903

C. 9,900



D. 9,902

Q4 Mathematics

The marked price of a stainless-steel bottle is ₹1,200. After applying two successive discounts of 10% and 5%, what is the selling price?

A. ₹1,052

B. ₹1,116

C. ₹1,026



D. ₹1,106

Q5 Mathematics

Train A leaves station M at 7:50 a.m. and reaches station N at 2:50 p.m. on the same day. Train B leaves station N at 9:50 a.m. and reaches station M at 2:50 p.m. on the same day. Find the time when Trains A and B meet.

A. 5:00 a.m.

B. 11:55 a.m.



C. 10:47 p.m.

D. 9:47 p.m.

Q6 Mathematics

A, B and C invest a sum in the ratio of 63 : 35 : 42, respectively. If they earned a total profit of ₹5,120 at the end of the year, then what is the difference between share of B and C?

A. ₹274

B. ₹221

C. ₹340

D. ₹256



Q7 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹6,786, and the rate of interest is 20% per annum compounded annually, then the sum is:

A. ₹27,795

B. ₹28,035

C. ₹28,275



D. ₹28,905

Q8 Mathematics

Which of the following numbers divides 253118139?

A. 12

B. 3



C. 5

D. 8



Q9 Mathematics

What smallest number should be added to 4519 so that the sum is completely divisible by 30?

- A. 10
- B. 6
- C. 13
- D. 11

**Q10 Mathematics**

Given that $4^{0.72} = x$, $4^{0.86} = y$ and $x^z = y^8$, then the value of z is close to:

- A. 8.43
- B. 9.68
- C. 11.98
- D. 9.56

**Q11 Mathematics**

Two numbers have HCF 6 and LCM 36. If the difference between the two numbers is 30, what are the two numbers?

- A. 18 and 48
- B. 24 and 54
- C. 12 and 42
- D. 6 and 36

**Q12 Mathematics**

A sells a MacBook to B at a loss of 60% and B sells the MacBook to C at a profit of 25%. If C purchased the MacBook for ₹47,236, then what was the cost (in ₹) of the MacBook for A?

- A. 94,472
- B. 94,468
- C. 94,467
- D. 94,478

**Q13 Mathematics**

Find the value of $50^{-13} \div 50^{15} \times 50^{-11}$.

- A. 50-39
- B. 50-36
- C. 50-35
- D. 50-49

**Q14 Mathematics**

If 2 times the mother's age is 26 years more than 4 times her daughter's age, and 3 times the daughter's age is 2 years less than the mother's age, then what is the difference (in years) between the ages of the mother and the daughter?

- A. 27
- B. 22
- C. 24
- D. 25

**Q15 Mathematics**

The average of first 170 even numbers is

- A. 170.5
- B. 171
- C. 172
- D. 171.5

**Q16 Mathematics**

A man goes to Lucknow from Kanpur at a speed of 72 km/hr and returns to Kanpur at speed of 90 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

- A. 76
- B. 80
- C. 83
- D. 79

**Q17 Mathematics**

The population of a district is 351000, out of which 164000 are males. 14% of the population is literate. If 14% males are literate, then what percentage of females are literate?

- A. 14%
- B. 17%
- C. 12%
- D. 16%

**Q18 Mathematics**

An equilateral triangle has each side measuring 13 cm; find its perimeter.

- A. 39 cm
- B. 30 cm
- C. 42 cm
- D. 26 cm



Q19 Mathematics

A number, when increased by 70%, gives 3910. The number is:

- A. 4600
- B. 2300
- C. 6900
- D. 1150

**Q20 Mathematics**

₹58,300 were divided among A, B and C, such that 4 times of A = 9 times of B = 3 times of C. Find the share of A.

- A. ₹20,901
- B. ₹20,919
- C. ₹20,988
- D. ₹21,125

**Q21 Mathematics**

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 75 kg and 39 kg is:

- A. 52.8
- B. 50.8
- C. 53.8
- D. 51.8

**Q24 Mathematics**

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 18^\circ$ and $\angle BAC = 93^\circ$, then what is the measure of $\angle ACD$ (in degree)?

- A. 51°
- B. 42°
- C. 50°
- D. 37°

**Q25 Mathematics**

Simplify the following.

$$3\left(\left(\frac{4}{3}\right)x^2 - 30x + 18\right) - 4(x^2 + 8x - 14)$$

- A. $122x - 110$
- B. $-122x + 110$
- C. $-122x - 110$
- D. $122x + 110$

**Q22 Mathematics**

The number 245015 is divisible by which of the following?

- A. 15
- B. 2
- C. 5
- D. 11

**Q23 Mathematics**

The product of two positive numbers is 2880. If the first number is five times of the second number, then the sum of the two numbers is:

- A. 144
- B. 137
- C. 164
- D. 150



Q26 Mathematics

Anjali can do a certain piece of work in 30 days. Anjali and Ayushi can together do the same work in 18 days, and Anjali, Ayushi and Ankita can do the same work together in 9 days. In how many days can Anjali and Ankita do the same work together?

A. $\frac{53}{6}$

B. $\frac{44}{5}$

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



D. $\frac{35}{4}$

Q27 Mathematics

Find the circumference (in m) of the largest circle that can be drawn completely inside a rectangle whose dimensions are given as 126 m and 226 m.

(Take $\pi = \frac{22}{7}$.)

A. 401

B. 395

C. 389

D. 396

**Q28 Mathematics**

Sakshi bought a toy for ₹456, decorated it at a cost of ₹20 and sold the toy for ₹612. Find the loss or profit percentage.

A. $\frac{200}{7}\%$ loss

B. $\frac{210}{7}\%$ loss

C. $\frac{200}{7}\%$ profit



D. 200 % profit

Q29 Mathematics

Simplify: $\sec^2\beta - \frac{1}{\operatorname{cosec}^2\beta - 1}$

A. 0

B. $\operatorname{cosec}\beta$

C. 1



D. $\sec\beta$



Q30 Mathematics

A can lay railway track between two given stations in 19 days and B can do the same job in 16 days. With the help of C, they did the job in 5 days only. Then, C alone can do the job in

A. $11\frac{101}{129} \text{ days}$



B. $20\frac{101}{129} \text{ days}$

C. $13\frac{101}{129} \text{ days}$

D. $9\frac{101}{129} \text{ days}$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 25^\circ$. E is a point on BC such that $\angle CAE = 80^\circ$. What is the measure of $\angle AEB$?

A. 146° B. 145° ✓C. 140° D. 139°

Q2 Mathematics

Find the surface area of a sphere whose diameter is equal to 14 cm.

A. $1102\pi \text{ cm}^2$ B. $1104\pi \text{ cm}^2$ C. $34\pi \text{ cm}^2$ D. $196\pi \text{ cm}^2$ ✓

Q3 Mathematics

Find the value of: $26^{-19} \div 26^{18} \times 26^3$

A. 26^{-35} B. 26^{-34} ✓C. 26^{-40} D. 26^{-45}

Q4 Mathematics

Sapna invested ₹20,400 on simple interest, partly at the rate of 14% per annum and partly at the rate of 11% per annum. If she earns equal interests from the two investments after 9 years, then find the sum invested at the rate of 14% per annum (in ₹).

A. 8,976 ✓

B. 8,977

C. 8,975

D. 8,979

Q5 Mathematics

The average of first 155 even numbers is

A. 155.5

B. 157

C. 156 ✓

D. 156.5

Q6 Mathematics

The HCF and the LCM of two numbers are 6 and 264, respectively. If one of the numbers is 66, find the other one.

A. 35

B. 105

C. 115

D. 24 ✓

Q7 Mathematics

Zeeshan travels 294 km at 42 km/hr, the next 210 km at 30 km/hr and the next 330 km at 66 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

A. 48.89

B. 40.17

C. 43.89 ✓

D. 36.24

Q8 Mathematics

A shopkeeper lists the price of a fan at 25% above its cost price and offers a 16% discount on its list price. If he earns a profit of ₹140, then what is the list price (in ₹) of the fan?

A. 3,500 ✓

B. 3,345

C. 3,702

D. 3,257

Q9 Mathematics

The population of a district is 368000, out of which 220000 are males. 62% of the population is literate. If 62% males are literate, then what percentage of females are literate?

A. 63%

B. 62% ✓

C. 59%

D. 60%



Q10 Mathematics

A bus travelling at 48 km/hr completes a journey in 9 hours. What should be its speed to cover the same distance in 12 hours?

A. 36 km/hr



B. 37 km/hr

C. 29 km/hr

D. 26 km/hr

Q11 Mathematics

An item marked for ₹39,250 is sold at ₹32,499 after allowing two successive discounts of $x\%$ and 10% . Find the value of x .

A. 10

B. 9

C. 8



D. 12

Q12 Mathematics

If 20% of first number is equal to four-fifths of second number, what is the ratio of first number to the second number?

A. 6 : 2

B. 7 : 4

C. 4 : 1



D. 1 : 6

Q13 Mathematics

The marks scored by 10 students are given below.
13, 20, 15, 13, 19, 12, 12, 11, 13, 10
The mode of the given data is:

A. 20

B. 19

C. 13



D. 15

Q14 Mathematics

6 men can complete a piece of work in 9 days, while 6 women can do it in 6 days. In how many days can 2 women and 3 men complete this work?

A. 9 days



B. 11 days

C. 10 days

D. 12 days

Q15 Mathematics

Which of the following numbers is divisible by 14?

A. 6794266

B. 7048048



C. 6436639

D. 7132968

Q16 Mathematics

Priya, Deepak, and Simran invest ₹1,370, ₹1,500, and ₹1,230, respectively, to start a business. If the profit at the end of the year is ₹1,010, then what is the share of Simran in the profit?

A. ₹300

B. ₹303



C. ₹304

D. ₹306

Q17 Mathematics

The product of two consecutive positive natural numbers is 812. The greater of the two numbers is:

A. 24

B. 42

C. 29



D. 27

Q18 Mathematics

Salman and Vivek together invested ₹45,200 in a business. At the end of the year, out of a total profit of ₹16,000, Vivek's share was ₹6,400. What was the difference between their investments?

A. ₹9,093

B. ₹10,752

C. ₹7,053

D. ₹9,040

**Q19 Mathematics**

If 2 times Mary's present age is 27 years more than 5 times Dia's present age, and 7 times Dia's present age is 9 years less than Mary's present age, then what is the difference (in years) between the ages of Mary and Dia?

A. 15



B. 17

C. 13

D. 11



Q20 Mathematics

The number of prime numbers lying between 430 and 438, both included, is:

- A. 3
- B. 4
- C. 6
- D. 2

**Q21 Mathematics**

93 light bulbs were purchased for ₹93, and 19 light bulbs broke in transit. The trader sold the remaining light bulbs at ₹1.40 each. Find his profit.

- A. ₹10.20
- B. ₹10.10
- C. ₹10.60
- D. ₹10.30

**Q22 Mathematics**

Pipe A can fill a tank in 16 hours, pipe B can fill the same tank in 28 hours and pipe C can fill the same tank in 8 hours. The time taken by them to fill the same tank if they operate together is::

- A. $8\frac{12}{25}$ hours
- B. $4\frac{12}{25}$ hours
- C. $11\frac{12}{25}$ hours
- D. $2\frac{12}{25}$ hours

**Q23 Mathematics**

An item is marked for ₹18,000. A shopkeeper gives two successive discounts of 10% and 5%. What is its selling price?

- A. ₹16,390
- B. ₹15,390
- C. ₹17,390
- D. ₹14,390

**Q24 Mathematics**

Find the value of $\frac{1 - \sec^2\theta}{\sin^2\theta} \times \cos^2\theta$.

- A. -1
- B. $\tan\theta$
- C. $\tan^2\theta$
- D. 1



Q25 Mathematics

The value of $\sqrt{256} + \sqrt{0.0256} - \sqrt{4.41}$ is _____.

- A. 7.4
- B. 13.18
- C. 14.06
- D. 13.37

**Q26** Mathematics

By how much is 65% of 75 greater than $\frac{2}{5}$ of 55?

- A. 24.75
- B. 23.75
- C. 26.75
- D. 20.75

**Q27** Mathematics

Find the value of x satisfying: $2(3x^2 - 6) - 3(2x^2 + 8x - 5) = 14$

- A. $-\frac{13}{24}$
- B. $-\frac{19}{24}$
- C. $-\frac{11}{24}$
- D. $-\frac{17}{24}$

**Q28** Mathematics

The curved surface area of a right circular cylinder is 5280 cm^2 and its base radius is 21 cm. Find the volume (in cm^3) of the cylinder.

{ Take $\pi = \frac{22}{7}$ }

- A. 50,440
- B. 65,660
- C. 45,550
- D. 55,440



Q29 Mathematics

The simple interest on a certain sum for $8\frac{4}{7}$ years at the rate of 6.8% per annum is ₹7,344.

What will be the amount payable on the same sum at the rate of 9.7% per annum simple interest in $6\frac{2}{3}$ years?

A. ₹20,745

B. ₹20,765

C. ₹20,761

D. ₹20,748

**Q30** Mathematics

The value of $\frac{5}{2} + \left(\frac{1}{1 + \frac{3}{8}} \right) - \frac{3}{5}$ is

A. $\frac{32}{215}$

B. $\frac{289}{110}$

C. $\frac{21}{214}$

D. $\frac{13}{219}$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

The sum of two numbers is 57 and their L.C.M. is 812. What are the two numbers?

A. 26, 31

B. 33, 24

C. 28, 29



D. 21, 36

Q2 Mathematics

Evaluate: $(-9) - (-60) \div (-10) + (-3) \times 6$

A. -36

B. -35

C. -33



D. -32

Q3 Mathematics

Seven times the present age of P exceeds the present age of Q by 46 years. After 8 years, six times Q's age will be 24 years less than six times P's age at that time. What is the present age (in years) of Q?

A. 11

B. 12

C. 3



D. 5

Q4 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 3% per month for 11 months.

A. ₹396



B. ₹53

C. ₹33

D. ₹66

Q5 Mathematics

$\sin(90 - x) \cos(180 - (x - y)) + \cos(90 - x) \sin(180 - (y - x))$. चे मूल्य शोधा.

A. $-\cos y$ B. $\sin y$ C. $-\sin y$ D. $\cos y$

Q6 Mathematics

The sum of the squares of two consecutive odd natural numbers is 394. The sum of the numbers is:

A. 22

B. 24

C. 28



D. 32

Q7 Mathematics

The sum of five numbers is 655. The average of the first two numbers is 80 and the third number is 101. Find the average of the remaining two numbers.

A. 181

B. 197



C. 198

D. 182

Q8 Mathematics

If the third proportional of 81 and 27 is x, then what is the value of x?

A. 7

B. 11

C. 9



D. 6

Q9 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 6.75% per annum rate of interest deposited on 22 February 2024 and withdrawn on 23 April 2024.

A. ₹44

B. ₹45



C. ₹43

D. ₹46



Q10 Mathematics

A number when increased by 80% gives 2790. The number is:

- A. 4650
- B. 1550
- C. 775
- D. 3100

**Q11 Mathematics**

The average weight of Vipul, Mohan and Mohammad is 45 kg. If the average weight of Vipul and Mohan is 43 kg and that of Mohan and Mohammad is 50 kg, then the weight of Mohan (in kg) is:

- A. 61
- B. 66
- C. 51
- D. 71

**Q12 Mathematics**

Which of the following numbers divides 4,81,355?

- A. 3
- B. 5
- C. 15
- D. 6

**Q13 Mathematics**

Ritik and Sanjay together invested ₹79,200 in a business. At the end of the year, out of a total profit of ₹16,500, Sanjay's share was ₹3,600. What was the difference between their investments?

- A. ₹46,400
- B. ₹42,889
- C. ₹42,824
- D. ₹44,640

**Q14 Mathematics**

A train with a length of 195 m overtakes a man moving at a speed of 5 km/hr (in the same direction) in 13 seconds. How much time (in seconds) will it take this train to completely cross another train that is 255 m long, moving in the opposite direction at a speed of 76 km/hr?

- A. 13
- B. 32
- C. 12
- D. 31

**Q15 Mathematics**

A shopkeeper marked the price of a table as ₹1,400 and offered two successive discounts, one of which is 12%. If a customer pays ₹1,133.44 for the table, then what was the second discount percentage offered?

- A. 5%
- B. 15 %
- C. 8%
- D. 10%

**Q16 Mathematics**

Rahul buys a box of pens (listed price of ₹900) with a trade discount of 30%. What is the net price?

- A. ₹630
- B. ₹700
- C. ₹600
- D. ₹750

**Q17 Mathematics**

Simplify the given expression.

$$x(3x - 5) + 5(x^2 - 3) + 16$$

- A. $8 \times 2 - 5x - 1$
- B. $8 \times 2 - 5x + 1$
- C. $8 \times 2 - 5x - 1$
- D. $-8 \times 2 - 5x - 1$

**Q18 Mathematics**

P, Q and R invested a sum in the ratio of 34 : 75 : 6, respectively. If they earned a total profit of ₹3,600 at the end of the year, what is the difference between the shares of Q and R?

- A. ₹2,316
- B. ₹2,109
- C. ₹2,264
- D. ₹2,160



Q19 Mathematics

The current population of a town is 12,014. It increases by 25% and 60% in two successive years but decreases by 50% in the third year. What is the population of the town at the end of the third year?

A. 12,019

B. 12,014

C. 12,015

D. 12,013

Q20 Mathematics

The greatest number that divides 131, 91, and 215, leaving remainders 8, 9, and 10 respectively, is:

A. 37

B. 57

C. 41

D. 61

Q21 Mathematics

The area of a triangle is 1080 cm^2 and its sides are in the ratio 5 : 12 : 13. The perimeter of the triangle is:

A. 150 cm

B. 180 cm

C. 120 cm

D. 210 cm

Q22 Mathematics

What smallest number should be added to 91673 so that the sum is completely divisible by 88?

A. 23

B. 21

C. 24

D. 26

Q23 Mathematics

Given that $58^{0.5} = x$, $58^{0.79} = y$ and $x^z = y^{10}$, then the value of z is close to:

A. 15.8

B. 15.54

C. 16.7

D. 18.48

Q24 Mathematics

A man goes to Nagpur from Visakhapatnam at a speed of 55 km/hr and returns to Visakhapatnam at speed of 66 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

A. 55

B. 58

C. 63

D. 60

Q25 Mathematics

A can do a work in 10 days and B can do the same work in 20 days. If they work on it together for 6 days, then what fraction of the work is left?

A. $\frac{1}{10}$ B. $\frac{7}{10}$ C. $\frac{3}{10}$ D. $\frac{11}{10}$ 

Q26 Mathematics

Pipe P can fill $\frac{5}{7}$ part of a tank in 30 hours, and pipe Q can fill $\frac{2}{5}$ part of the same tank in 28 hours.

Both P and Q were kept open for 7 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 8 hours. Pipes P, Q and R together can fill the empty tank in:

A. 210 hours



B. 204 hours

C. 214 hours

D. 222 hours

Q27 Mathematics

A cylindrical rod has an outer curved surface area of 3300 cm^2 . If the length of the rod is 72 cm, then the outer radius (in cm) of the rod, correct to two places of decimal, is:

Take $\pi = \frac{22}{7}$.

A. 8.31

B. 6.37

C. 7.29



D. 7.36

Q28 Mathematics

A regular polygon has 30 sides. Find the measure of one interior angle.

A. 168°



B. 12°

C. 48°

D. 128°

Q29 Mathematics

By selling an article at $\frac{2}{5}$ of its actual selling price, Nirbhay incurs a loss of 26%.

If he sells it at 84% of its actual selling price, then the profit percentage is:

A. 56.7%

B. 55.4%



C. 57.8%

D. 55.6%



Q30 Mathematics

Pallavi bought a toy for ₹740, decorated it at a cost of ₹16 and sold the toy for ₹558. Find the loss or profit percentage.

A. 550% *loss*

B. $\frac{550}{21}\%$ *loss*



C. $\frac{560}{21}\%$ *profit*

D. $\frac{550}{21}\%$ *profit*



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Find the area of a triangle with base 12 cm and height 8 cm.

- A. 60 cm²
B. 72 cm²
C. 96 cm²
D. 48 cm²



Q2 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 9 months.

- A. ₹36
B. ₹56
C. ₹72
D. ₹432



Q3 Mathematics

Find the mean proportional between 24 and 150.

- A. 60
B. 40
C. 50
D. 70



Q4 Mathematics

Train A leaves station M at 8:25 AM and reaches station N at 3:25 PM on the same day. Train B leaves station N at 10:25 AM and reaches station M at 3:25 PM on the same day. Find the time when trains A and B meet.

- A. 11:30 AM
B. 12:30 PM
C. 11:10 AM
D. 12:50 PM



Q5 Mathematics

If the 6-digit number N83M92 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

- A. $M = N$
B. $M + N = -2$
C. $M - N = 2$
D. $M - N = 1$



Q6 Mathematics

The number 444348269 is divisible by which of the following?

- A. 10
B. 12
C. 19
D. 9



Q7 Mathematics

3 years ago, the age of a father was 24 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

- A. 23
B. 25
C. 19
D. 21



Q8 Mathematics

The number 327087 is divisible by which of the following?

- A. 8
B. 12
C. 5
D. 3



Q9 Mathematics

Find the greatest number that will divide 49, 97 and 189 so as to leave the same remainder in each case.

- A. 4
B. 3
C. 5
D. 7



Q10 Mathematics

An amount of ₹658 is divided among three persons in the ratio of 18 : 12 : 2. The difference between the largest and the smallest shares (in ₹) in the distribution is:

- A. 329
B. 242
C. 261
D. 426



Q11 Mathematics

The sides of a triangle are 82 cm, 18 cm, and 80 cm. What is its area? (in cm^2)

A. 670

B. 731

C. 712

D. 720

**Q12 Mathematics**

The sum of five numbers is 655. The average of the first two numbers is 80 and the third number is 109. Find the average of the remaining two numbers.

A. 190

B. 194

C. 189

D. 193

**Q13 Mathematics**

Find the value of $[954 \div \{30 + 9 \times (3 - 6)\}]$.

A. 313

B. 318



C. 321

D. 319

Q14 Mathematics

The current population of a town is 14,680. It increases by 25% and 70% in two successive years but decreases by 20% in the third year. What is the population of the town at the end of the third year?

A. 24,956



B. 24,958

C. 24,960

D. 24,953

Q15 Mathematics

An item marked at ₹5,000 is given at successive discounts of 10% and 5%. Find the final selling price.

A. ₹4,350

B. ₹4,320

C. ₹4,275



D. ₹4,250

Q16 Mathematics

The average runs scored by a batsman in 23 matches is 42. In the next 10 matches, the batsman scored an average of 15 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

A. 35.82

B. 33.82



C. 32.82

D. 34.82

Q17 Mathematics

A shopkeeper buys a cycle for ₹3,500 and sells it at a discount of 20% with no gain no loss. What is the marked price of the cycle?

A. ₹7,343

B. ₹4,375



C. ₹3,475

D. ₹5,374

Q18 Mathematics

Prashant and Nisha have to travel from Delhi to Kanpur in their respective cars. Prashant is driving at 117 km/hr while Nisha is driving at 48 km/hr. Find the time taken by Nisha to reach Kanpur if Prashant takes 16 hours.

A. 36 hours

B. 39 hours



C. 45 hours

D. 44 hours

Q19 Mathematics

The cost of 12 pens and 7 pencils is ₹285. If the cost of a pen decreases by ₹6 and the cost of a pencil increases by ₹5, then the cost of 11 pens and 3 pencils is ₹118. What is the original cost of 2 pens and 2 pencils?

A. ₹66

B. ₹68

C. ₹73

D. ₹70



Q20 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹2,352, and the rate of interest is 5% per annum compounded annually, then the sum is:

A. ₹44,035

B. ₹44,800



C. ₹44,855

D. ₹45,115

Q21 Mathematics

M and N start a business. M invests ₹46,000 more than N for 3 months and N invests for 4 months. M's share is ₹453 more than that of N, out of a total profit of ₹1,359. Find the capital contributed by M.

A. ₹73,608

B. ₹73,516

C. ₹73,600



D. ₹73,715

Q22 Mathematics

Nitin bought some pencils at the rate of ₹180 a dozen. He sold them for ₹17 each. His profit percentage is ____%. (Round off to two decimal places.)

A. 15.33

B. 13.33



C. 11.33

D. 17.33

Q23 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 19^\circ$ and $\angle BAC = 137^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 131°

B. 120°

C. 128°

D. 132°

**Q24 Mathematics**

By how much is 65% of 65 greater than $\frac{1}{5}$ of 15?

A. 36.25

B. 39.25



C. 33.25

D. 37.25

Q25 Mathematics

Simplify: $3\left(\left(\frac{7}{3}\right)x^2 - 25x + 12\right) - 7(x^2 + 9x - 13)$

A. $-138x + 127$



B. $138x + 127$

C. $-138x - 127$

D. $138x - 127$



Q26 Mathematics

Jaya can do a certain piece of work in 30 days. Jaya and Sushma can together do the same work in 21 days, and Jaya, Sushma and Hina can do the same work together in 14 days. In how many days can Jaya and Hina do the same work together?

A. $\frac{31}{3}$

B. $\frac{35}{2}$



C. $\frac{44}{2}$

D. $\frac{27}{4}$

Q27 Mathematics

The selling price of 20 books is equal to the cost price of 5 books. Find the loss or gain percentage.

A. 75% gain

B. $\frac{100}{15}\% \text{ gain}$

C. 75% loss



D. $\frac{100}{15}\% \text{ loss}$

Q28 Mathematics

A can do a work in 12 days and B can do the same work in 18 days. If they work on it together for 4 days, then what fraction of the work is left?

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



B. $\frac{11}{9}$

C. $\frac{14}{9}$

D. $\frac{13}{9}$



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Q29 Mathematics

The value of $10^2 + \sqrt{2^2} - 4\sqrt{25} - 3$ is

A. 81

B. 79



C. 78

D. 69

Q30 Mathematics

The angles of elevation of the top of a tower from two points X and Y (on opposite sides of the tower) at distances b m and a m, respectively, from the base and in the same straight line with it are complementary. The height (in m) of the tower is _____.

A. ab



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

C. $(ab)^{\frac{1}{2}}$

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



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Mathematics

30 Questions • Answer Key

Q1 Mathematics

79 plates were purchased for ₹79, and 13 plates broke in transit. The trader sold the remaining plates at ₹5.90 each. Find his profit.

A. ₹310.40



B. ₹305.40

C. ₹316.40

D. ₹314.90

Q2 Mathematics

If 39% of first number is equal to eight-ninths of second number, what is the ratio of first number to the second number?

A. 800 : 351



B. 804 : 348

C. 805 : 353

D. 796 : 347

Q3 Mathematics

A number, when increased by 60%, gives 3550. The number is:

A. 1109.375

B. 6656.25

C. 2218.75



D. 4437.5

Q4 Mathematics

A woman travels 282 km at 47 km/hr, a second distance of 120 km at 20 km/hr and a third distance of 496 km at 62 km/hr. Find her average speed for the whole journey (in km/hr).

A. 46.7

B. 44.9



C. 53.6

D. 52.2

Q5 Mathematics

₹74,000 were divided among A, B and C, such that 9 times of A = 3 times of B = 7 times of C. Find the share of A.

A. ₹13,816

B. ₹14,000



C. ₹14,194

D. ₹13,865

Q6 Mathematics

The number of prime numbers lying between 466 and 476, both included, is:

A. 5

B. 1



C. 3

D. 2

Q7 Mathematics

If 5 times a son's age is added to his father's age, the sum is 79 years. If 2.5 times the father's age is added to the son's age, the sum is 94 years. What is the father's age (in years)?

A. 34



B. 38

C. 30

D. 37

Q8 Mathematics

Which of the following numbers divides 740705?

A. 5



B. 12

C. 9

D. 4



Q9 Mathematics

A product is priced at ₹10,000. A wholesaler offers a trade discount of 20%. On the discounted price, a scheme discount of 10% is offered. However, if the customer pays in cash, an additional 5% discount is given on the final price after both discounts. What is the final price the customer has to pay?

A. ₹6,940

B. ₹6,840

C. ₹6,800

D. ₹7,000

Q10 Mathematics

The cost of 2 pens and 19 pencils is ₹118. If the cost of a pen decreases by ₹5 and the cost of a pencil increases by ₹4, then the cost of 5 pens and 8 pencils is ₹144. What is the original cost of 14 pens and 6 pencils?

A. ₹314

B. ₹318

C. ₹319

D. ₹321

Q11 Mathematics

The average runs scored by a batsman in 23 matches is 41. In the next 10 matches, the batsman scored an average of 14 runs. Find his average runs scored (rounded off to two decimals) in all the 33 matches.

A. 34.82

B. 31.82

C. 33.82

D. 32.82

Q12 Mathematics

A shirt is marked at ₹800 and sold at a 25% discount. What is the selling price?

A. ₹620

B. ₹640

C. ₹680

D. ₹600

Q13 Mathematics

Evaluate: $16 + 12 \div 6 - 2 \times 4$

A. 10

B. 9

C. 12

D. 13

Q14 Mathematics

The greatest number that will divide 527 and 632 leaving remainders 7 and 8, respectively, is:

A. 104

B. 112

C. 98

D. 102

Q15 Mathematics

A man driving a car at a speed of 42 km/hr crosses a bridge in 5.4 minutes. Find the length of the bridge.

A. 4.38 km

B. 3.78 km

C. 3.42 km

D. 3.51 km

Q16 Mathematics

The population of a district is 359000, out of which 179000 are males. 22% of the population is literate. If 22% males are literate, then what percentage of females are literate?

A. 24%

B. 20%

C. 22%

D. 19%

Q17 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 3 months.

A. ₹12

B. ₹32

C. ₹144

D. ₹24

Q18 Mathematics

Ritu, Sameer, and Isha invest ₹1,350, ₹1,470, and ₹1,380, respectively, to start a business. If the profit at the end of the year is ₹1,330, then what is the share of Isha in the profit?

A. ₹435

B. ₹437

C. ₹438

D. ₹439



Q19 Mathematics

The HCF and the LCM of two numbers are 91 and 546, respectively. If one of the numbers is 182, find the other one.

A. 182

B. 91

C. 364

D. 273

**Q20 Mathematics**

Simplify $x(6x - 3) + 5(x^2 - 4) + 18$.

A. $-11x^2 - 3x - 2$

B. $11x^2 - 3x - 2$



C. $-11x^2 - 3x + 2$

D. $11x^2 - 3x + 2$

Q21 Mathematics

The average price of three items of furniture is ₹15,990. If their prices are in the ratio 3 : 5 : 7, the price of the cheapest item (in ₹) is:

A. 1,066

B. 9,594



C. 7,462

D. 3,198

Q22 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 54^\circ$ and $\angle BAC = 60^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 184

B. 181

C. 171

D. 48

**Q23 Mathematics**

The simple interest on a certain sum for $2\frac{6}{7}$ years at the rate of 7.7% per annum is ₹1,188.

What will be the amount payable on the same sum at the rate of 8.5% per annum simple interest in $4\frac{5}{9}$ years?

A. ₹7,484

B. ₹7,489

C. ₹7,504

D. ₹7,491



Q24 Mathematics

Pipe P can fill $\frac{3}{4}$ part of a tank in 15 hours, and pipe Q can fill $\frac{5}{6}$ part of the same tank in 25 hours.

Both P and Q were kept open for 2 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 5 hours. Pipes P, Q and R together can fill the empty tank in:

- A. 17 hours
- B. 22 hours
- C. 20 hours
- D. 31 hours

**Q25 Mathematics**

Find the circumference (in m) of the largest circle that can be drawn completely inside a rectangle with sides 249 m and 217 m.

(Take $\pi = \frac{22}{7}$.)

- A. 679
- B. 690
- C. 682
- D. 676

**Q26 Mathematics**

A flagstaff stands on the top of a building. At a distance of 30 m away from the foot of the building, the angle of elevation of the top of the flagstaff is 60° and the angle of elevation of the top of the building is 30° . Find the height (in metres) of the flagstaff.

- A. $60\sqrt{3}$
- B. $40\sqrt{3}$
- C. $20\sqrt{3}$
- D. $30\sqrt{3}$

**Q27 Mathematics**

The value of $\sqrt{400} + \sqrt{0.0225} - \sqrt{9}$ is ____.

- A. 17.15
- B. 12.19
- C. 1.54
- D. 14.54



Q28 Mathematics

A trader claims to sell rice at a profit of 39%, but also dishonestly uses a weight which is 17% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 72%

B. 66%

C. 69%

D. 67%

**Q29 Mathematics**

Find the volume of the sphere whose diameter is 30 cm. (Use $\pi = 3.14$).

A. 15,130 cm³B. 14,230 cm³C. 14,130 cm³D. 15,230 cm³**Q30 Mathematics**

A can do a work in 13 days and B can do the same work in 24 days. If they work on it together for 5 days, then what fraction of the work is left?

A. $\frac{133}{312}$ B. $\frac{129}{312}$ C. $\frac{137}{312}$ D. $\frac{127}{312}$ 

Mathematics

30 Questions • Answer Key

Q1 Mathematics

Which of the following numbers divides 15,99,16,901?

A. 19



B. 18

C. 28

D. 25

Q2 Mathematics

Manoj, Swati and Rahul invested ₹1,020, ₹1,440 and ₹1,230, respectively to start a business. If the profit at the end of the year is ₹1,260, what is Rahul's share of the profit?

A. ₹420



B. ₹423

C. ₹421

D. ₹422

Q3 Mathematics

The perimeter of a square is 248 m. Its area (in m^2) is:

A. 3816

B. 3844



C. 3848

D. 3840

Q4 Mathematics

A number when increased by 100% gives 2700. The number is:

A. 2700

B. 1350



C. 675

D. 4050

Q5 Mathematics

If the third proportional of 54 and 18 is x, then what is the value of x?

A. 3

B. 5

C. 6



D. 9

Q6 Mathematics

M and N start a business. M invests ₹70,000 more than N for 3 months and N invests for 5 months. M's share is ₹288 more than that of N, out of a total profit of ₹4,896. Find the capital contributed by M.

A. ₹1,50,000



B. ₹1,40,000

C. ₹1,60,000

D. ₹1,80,000

Q7 Mathematics

Train A leaves station M at 8:05 a.m. and reaches station N at 3:05 p.m. on the same day. Train B leaves station N at 10:05 a.m. and reaches station M at 3:05 p.m. on the same day. Find the time when Trains A and B meet.

A. 11:50 a.m.

B. 12:00 p.m.

C. 12:30 p.m.

D. 12:10 p.m.



Q8 Mathematics

Find the value of $[290 \div \{27 + 5 \times (2 - 7)\}]$.

A. 140

B. 141

C. 145



D. 150

Q9 Mathematics

What smallest number should be added to 81661 so that the sum is completely divisible by 73?

A. 30

B. 24

C. 26



D. 25



Q10 Mathematics

A jacket is marked at ₹8,000. The shopkeeper offers a 30% discount on the marked price. After the discount, a 12% sales tax is added on the discounted price. What is the final price of the jacket?

A. ₹6,240

B. ₹7,248

C. ₹6,272



D. ₹6,440

Q11 Mathematics

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 73 kg and 39 kg is:

A. 51.4



B. 53.4

C. 50.4

D. 52.4

Q12 Mathematics

Find the surface area of a cuboid with length 8 cm, breadth 5 cm and height 3 cm.

A. 158 cm²



B. 140 cm²

C. 94 cm²

D. 126 cm²

Q13 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 6.75% per annum rate of interest deposited on 23 February 2024 and withdrawn on 24 April 2024.

A. ₹46

B. ₹43

C. ₹45



D. ₹44

Q14 Mathematics

The LCM of $3^3 \times 8^2 \times 14$, $3^2 \times 14^2 \times 19$ and $8^3 \times 14^2 \times 19^2$ is:

A. $32 \times 83 \times 14 \times 192$

B. $32 \times 82 \times 142 \times 193$

C. $33 \times 82 \times 142 \times 19$

D. $33 \times 83 \times 142 \times 192$

**Q15 Mathematics**

A man driving a car at a speed of 75 km/hr crosses a bridge in 1.4 minutes. Find the length of the bridge.

A. 1.18 km

B. 1.02 km

C. 1.75 km



D. 1.01 km

Q16 Mathematics

If 2 times a mother's present age is 27 years more than 9 times her daughter's present age, and 6 times the daughter's present age is 9 years less than the mother's present age, then what is the difference (in years) between the ages of the mother and the daughter?

A. 23

B. 24



C. 29

D. 21

Q17 Mathematics

The average weight of Vipul, Mohan, and Mohammad is 46 kg. If the average weight of Vipul and Mohan is 36 kg and that of Mohan and Mohammad is 43 kg, then the weight of Mohan (in kg) is:

A. 40

B. 20



C. 35

D. 30

Q18 Mathematics

The population of a district is 364000, out of which 178000 are males. 63% of the population is literate. If 63% males are literate, then what percentage of females are literate?

A. 65%

B. 63%



C. 62%

D. 66%

Q19 Mathematics

A store sells a printer priced at ₹32,000, offering a trade discount of 9%. What is the discount amount?

A. ₹2,740

B. ₹2,780

C. ₹2,880



D. ₹2,840



Q20 Mathematics

Which of the following numbers divide 726179?

A. 28

B. 29

C. 20

D. 23

**Q21 Mathematics**

The product of two consecutive positive natural numbers is 272. The greater of the two numbers is:

A. 28

B. 17



C. 9

D. 36

Q22 Mathematics

What sum of money (in ₹) will amount to ₹2,280 at 4% per annum simple interest in 5 years?

A. ₹1,850

B. ₹1,900



C. ₹11,400

D. ₹1,950

Q23 Mathematics

I bought two frocks for ₹1,200. I sold the first one at a loss of 10% and the second at a gain of 15%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first frock.

A. 704

B. 720



C. 740

D. 744

Q24 Mathematics

Find the value of x satisfying: $5(5x^2 - 7) - 5(5x^2 + 2x - 4) = 15$

A. 2

B. -1

C. -3



D. 0

Q25 Mathematics

Priya can do a certain piece of work in 22 days. Priya and Varsha can together do the same work in 11 days, and Priya, Varsha and Nisha can do the same work together in 8 days. In how many days can Priya and Nisha do the same work?

A. $\frac{94}{9}$

B. $\frac{95}{8}$

C. $\frac{88}{7}$



D. $\frac{78}{7}$



Q26 Mathematics

Find the value of $\frac{\sin A - 2\sin^3 A}{2\cos^3 A - \cos A} + \sqrt{\operatorname{cosec}^2 A - 1}$.

A. $\sec^2 A$

B. $\sec A \operatorname{cosec} A$ ✓

C. $\operatorname{cosec}^2 A$

D. $\sec A$

Q27 Mathematics

The selling price of 50 books is equal to the cost price of 5 books. Find the loss or gain percentage.

A. 90% loss ✓

B. $\frac{100}{45}\%$ gain

C. $\frac{100}{45}\%$ loss

D. 90% gain

Q28 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 113^\circ$ and $\angle BAC = 26^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 165°

B. 166°

C. 41° ✓

D. 168°

Q29 Mathematics

Pipe A can fill a tank in 14 hours, pipe B can fill the same tank in 24 hours and pipe C can fill the same tank in 17 hours. The time taken by them to fill the same tank if they operate together is::

A. $2\frac{401}{491}$ hours

B. $11\frac{401}{491}$ hours

C. $10\frac{401}{491}$ hours

D. $5\frac{401}{491}$ hours ✓



The value of $2^2 + \sqrt{8^2} - 2\sqrt{4} - 11$ is

A. 2

B. 5

C. -3



D. -7



Mathematics

30 Questions • Answer Key

Q1 Mathematics

A cylinder has its radius reduced by 20% while its height is increased by 40%. What is the percentage change in its volume?

- A. 14.2% increase
- B. 10.4% decrease ✓
- C. 12% increase
- D. No increase or decrease

Q2 Mathematics

An article is marked at ₹4,000. Two successive discounts of 25% and 20% are given. What is the final price?

- A. ₹2,600
- B. ₹2,400 ✓
- C. ₹2,500
- D. ₹2,560

Q3 Mathematics

A man walks to a viewpoint and returns to the starting point by his car maintaining constant speed and thus takes a total time of 5 hours 30 minutes. He would have gained 3 hours by driving both ways. How long would it have taken for him to walk both ways with same walking speed?

- A. 8 hours 45 minutes
- B. 9 hours 30 minutes
- C. 8 hours 30 minutes ✓
- D. 7 hours 15 minutes

Q4 Mathematics

Yash travels 252 km at 63 km/hr, the next 891 km at 99 km/hr and the next 183 km at 61 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

- A. 88.59
- B. 82.88 ✓
- C. 79.83
- D. 84.55

Q5 Mathematics

The number 861616843 is divisible by which of the following?

- A. 43 ✓
- B. 47
- C. 36
- D. 50

Q6 Mathematics

An amount of ₹638 is divided among three persons in the ratio of 5 : 17 : 7. The difference between the largest and the smallest shares (in ₹) in the distribution is:

- A. 264 ✓
- B. 170
- C. 190
- D. 331

Q7 Mathematics

The population of a district is 356000, out of which 178000 are males. 39% of the population is literate. If 59% males are literate, then what percentage of females are literate?

- A. 16%
- B. 19% ✓
- C. 17%
- D. 21%

Q8 Mathematics

The number 956169 is divisible by which of the following?

- A. 12
- B. 2
- C. 4
- D. 3 ✓

Q9 Mathematics

Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 5.5 years at 16% per annum rate of interest.

- A. 452
- B. 332
- C. 402
- D. 352 ✓



Q10 Mathematics

If 40% of first number is equal to two-sevenths of second number, what is the ratio of first number to the second number?

A. 5 : 7



B. 8 : 4

C. 4 : 8

D. 1 : 9

Q11 Mathematics

Simplify $x(7x - 4) + 2(x^2 - 2) + 11$.

A. $9x^2 - 4x - 7$

B. $-9x^2 - 4x - 7$

C. $-9x^2 - 4x + 7$

D. $9x^2 - 4x + 7$

**Q12 Mathematics**

Evaluate 182^2 .

A. 33094

B. 33124



C. 33074

D. 33084

Q13 Mathematics

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 74 kg and 36 kg is:

A. 53

B. 51



C. 50

D. 52

Q14 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 7.5% per annum rate of interest deposited on 12 February 2024 and withdrawn on 13 April 2024.

A. 50



B. 49

C. 51

D. 48

Q15 Mathematics

The average of first 154 even numbers is

A. 156

B. 155



C. 155.5

D. 154.5

Q16 Mathematics

The number of prime numbers lying between 393 and 401, both included, is:

A. 1

B. 2



C. 3

D. 7

Q17 Mathematics

4 years ago, the age of a father was 37 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 30

B. 31

C. 35

D. 33

**Q18 Mathematics**

By availing two successive discounts of 20% and 10%, a customer got a discount of ₹23,800. Determine the marked price of the item.

A. ₹85,000



B. ₹80,000

C. ₹75,000

D. ₹90,000

Q19 Mathematics

A number, when increased by 100%, gives 2800. The number is:

A. 700

B. 4200

C. 2800

D. 1400



Q20 Mathematics

Mohan and Nishant start a business. Mohan invests ₹89,000 more than Nishant for 3 months and Nishant invests for 2 months. Mohan's share is ₹1,070 more than that of Nishant, out of a total profit of ₹4,280. Find the capital contributed by Mohan.

A. ₹8,20,000

B. ₹8,90,000

C. ₹8,60,000

D. ₹8,10,000

Q21 Mathematics

Given that $103^{0.2} = x$, $103^{0.43} = y$ and $x^z = y^6$, then the value of z is close to:

A. 12.45

B. 14.16

C. 12.9

D. 11.74

Q22 Mathematics

The sum of the squares of two consecutive even natural numbers is 1460. The sum of the numbers is:

A. 54

B. 58

C. 60

D. 56

Q23 Mathematics

If the 6-digit number N29M11 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M + N = -7$

B. $M - N = 1$

C. $M - N = 7$

D. $M = N$

Q24 Mathematics

The selling price of 50 books is equal to the cost price of 19 books. Find the loss or gain percentage.

A. $\frac{100}{31}\%$ gain

B. $\frac{100}{31}\%$ loss

C. 62% gain

D. 62% loss

Q25 Mathematics

Pipe A can fill a tank in 11 hours, pipe B can fill the same tank in 26 hours and pipe C can fill the same tank in 12 hours. The time taken by them to fill the same tank if they operate together is::

A. $7\frac{256}{365}$ hours

B. $10\frac{256}{365}$ hours

C. $11\frac{256}{365}$ hours

D. $4\frac{256}{365}$ hours



Q26 Mathematics

Himanshi bought a toy for ₹199, decorated it at a cost of ₹9, and sold the toy for ₹231. Find the loss or gain percentage.

A. 575% profit

B. $\frac{585}{52}$ % loss

C. $\frac{575}{52}$ % profit



D. $\frac{575}{52}$ % loss

Q27 Mathematics

Simplify: $\frac{\cos \alpha}{1 - \sin \alpha} - \frac{1 + \sin \alpha}{\cos \alpha}$

A. $\cos^2 \alpha$

B. 0



C. $\sin^2 \alpha$

D. 1

Q28 Mathematics

A cylindrical rod has an outer curved surface area of 2200 cm^2 . If the length of the rod is 16 cm, then the outer radius (in cm) of the rod, correct to two places of decimal, is:

(Take $\pi = \frac{22}{7}$)

A. 21.09

B. 23.29

C. 21.88



D. 23.95

Q29 Mathematics

Lokesh and Manoj can complete a certain piece of work in 11 and 15 days, respectively. They started to work together, and after 5 days, Manoj left. In how many days will Lokesh complete the remaining work?

A. $7\frac{1}{3}$

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

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

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



Q30 Mathematics

ABCD is a quadrilateral in which $AB \parallel DC$, and E and F are the mid points of the diagonals AC and BD, respectively. If $AB = 45$ cm, $BC = 96$ cm, $DC = 53$ cm, and $AD = 37$ cm, then what is the length (in cm) of EF?

A. 3

B. 4



C. 5

D. 7



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Which of the following numbers divides 86,16,843?

A. 43



B. 50

C. 36

D. 47

Q2 Mathematics

The LCM of the numbers 12.8 and 0.004 is:

A. 1.28

B. 12.8



C. 0.128

D. 128

Q3 Mathematics

After giving two successive discounts, each of $x\%$ on the marked price of an article, the total discount is ₹18,000. If the marked price of the article is ₹50,000, find the value of x .

A. 20



B. 40

C. 10

D. 30

Q4 Mathematics

Find the value of: $[459 \div \{11 + 2 \times (5 - 9)\}]$.

A. 154

B. 152

C. 153



D. 155

Q5 Mathematics

Find the value of $50^{-6} \div 50^{18} \times 50^{-5}$.

A. 50-19

B. 50-29



C. 50-36

D. 50-32

Q6 Mathematics

₹12,300 were divided among A, B and C such that 3 times the share of A = 6 times the share of B = 2 times the share of C. Find the share of A.

A. ₹3,915

B. ₹3,924

C. ₹4,063

D. ₹4,100



Q7 Mathematics

The product of two consecutive natural numbers is 702. The greater of the two numbers is:

A. 24

B. 26

C. 38

D. 27



Q8 Mathematics

In covering a distance of 30 km, Anmol takes 7 hours more than Nikhil. If Anmol doubles his speed, then he would take 8 hours less than Nikhil. Anmol's speed is:

A. 6 km/hr

B. 1 km/hr



C. 3 km/hr

D. 7 km/hr

Q9 Mathematics

A man driving a car at a speed of 99 km/hr crosses a bridge in 1.2 minutes. Find the length (in metres) of the bridge.

A. 1960

B. 1970

C. 1980



D. 1950



Q10 Mathematics

Find the median of 26, 13, 14, 15, 8, 36, 23, 35 and 50.

A. 35

B. 50

C. 23



D. 26

Q11 Mathematics

A retailer offers the following discount scheme to his customers for the purchase of articles.

'Buy 30 and get 10 free'

Find the discount percentage offered.

A. 28%

B. 30%

C. 25%



D. 26%

Q12 Mathematics

I bought two dresses for ₹1,200. I sold the first one at a loss of 9% and the second at a gain of 18%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first dress.

A. 800



B. 824

C. 784

D. 820

Q13 Mathematics

Which of the following ratios is the greatest?

A. 50 : 60



B. 43 : 65

C. 35 : 72

D. 37 : 76

Q14 Mathematics

Which of the following numbers divides 81,42,42,541?

A. 7



B. 15

C. 8

D. 12

Q15 Mathematics

Rahul, Monika, and Yuvraj invest ₹1,310, ₹1,430, and ₹1,040, respectively, to start a business. If the profit at the end of the year is ₹1,890, then what is the share of Yuvraj in the profit?

A. ₹522

B. ₹519

C. ₹523

D. ₹520

**Q16 Mathematics**

The average of first 160 even numbers is

A. 162

B. 161



C. 161.5

D. 160.5

Q17 Mathematics

The current population of a town is 12,500. It increases by 52% and 30% in two successive years but decreases by 15% in the third year. What is the population of the town at the end of the third year?

A. 20,991

B. 20,998

C. 20,995



D. 20,990

Q18 Mathematics

3 years ago, the age of a father was 21 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 15

B. 21

C. 23

D. 18

**Q19 Mathematics**

If the 6-digit number N18M05 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M - N = 1$

B. $M = N$

C. $M + N = -2$

D. $M - N = 2$



Q20 Mathematics

Sapna invested ₹20,900 on simple interest, partly at 9% per annum and partly at 13% per annum. If she earns equal interests from the two investments after 3 years, then find the sum invested at 9% per annum (in ₹).

A. 12,349

B. 12,348

C. 12,350

D. 12,352

Q21 Mathematics

Which of the following statements is correct?

A. A square is a special case of both a rectangle and a rhombus.

B. A square is a special case of neither a rectangle nor a rhombus.

C. A square is a special case of a rectangle only.

D. A square is a special case of a rhombus only.

Q22 Mathematics

The perimeter of a square is 336 m. Its area (in m^2) is:

A. 7057

B. 7056

C. 7036

D. 7052

Q23 Mathematics

By how much is 65% of 65 greater than $\frac{1}{5}$ of 45?

A. 27.25

B. 30.25

C. 33.25

D. 31.25

Q24 Mathematics

The simple interest on a certain sum for $3\frac{1}{3}$ years at the rate of 4.2% per annum is ₹5,845.

What will be the amount payable on the same sum at the rate of 6.4% per annum simple interest in $12\frac{1}{2}$ years?

A. ₹75,148

B. ₹75,143

C. ₹75,131

D. ₹75,150

Q25 Mathematics

A trader claims to sell vegetables at a profit of 57%, but also dishonestly uses a weight which is 13% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 75%

B. 85%

C. 79%

D. 80%



Q26 Mathematics

If $\frac{x}{y} = \cot \theta$, where θ is an acute angle, then $\operatorname{cosec} \theta =$ _____.

A. $\frac{\sqrt{x^2 + y^2}}{y}$



B. $\frac{\sqrt{x^2 + y^2}}{x}$

C. $\frac{\sqrt{y^2 - x^2}}{y}$

D. $\frac{y}{x}$

Q27 Mathematics

What is the area of a triangle with a base of 12 cm and a height of 8 cm?

A. 16 cm^2

B. 96 cm^2

C. 48 cm^2



D. 24 cm^2

Q28 Mathematics

Find the value of x satisfying: $5(2x^2 - 7) - 2(5x^2 + 8x - 2) = 12$

A. $-\frac{53}{16}$

B. $-\frac{43}{16}$



C. $-\frac{39}{16}$

D. $-\frac{49}{16}$



Q29 Mathematics

Pipe P can fill $\frac{3}{4}$ part of a tank in 27 hours, and pipe Q can fill $\frac{2}{3}$ part of the same tank in 12 hours.

Both P and Q were kept open for 6 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 8 hours. Pipes P, Q and R together can fill the empty tank in:

A. 45 hours

B. 48 hours



C. 31 hours

D. 37 hours

Q30 Mathematics

Pipe A can fill a tank in 18 hours, pipe B can fill the same tank in 21 hours and pipe C can fill the same tank in 16 hours. The time taken by them to fill the same tank if they operate together is::

A. $6\frac{6}{167}$ hours



B. $7\frac{6}{167}$ hours

C. $13\frac{6}{167}$ hours

D. $11\frac{6}{167}$ hours



Mathematics

30 Questions • Answer Key

Q1 Mathematics

The average of first 169 even numbers is

- A. 169.5
- B. 170.5
- C. 170
- D. 171



Q2 Mathematics

If the 6-digit number N75M52 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

- A. $M + N = -1$
- B. $M - N = 5$
- C. $M = N$
- D. $M - N = 1$



Q3 Mathematics

Simplify: $(\cos^4 A - \sin^4 A + 1) \operatorname{cosec}^2 A$

- A. $\tan 2A$
- B. $2 \cot 2A$
- C. $\cot 2A$
- D. $2 \tan 2A$



Q4 Mathematics

Rekha, Sanjay, and Poonam invest ₹1,320, ₹1,170, and ₹1,660, respectively, to start a business. If the profit at the end of the year is ₹1,010, then what is the share of Poonam in the profit?

- A. ₹407
- B. ₹404
- C. ₹405
- D. ₹402



Q5 Mathematics

Evaluate: $-12 - \{-8 \times (6 - 12) + 30 \div (-6)\}$

- A. -55
- B. -58
- C. -57
- D. -52



Q6 Mathematics

Five times the present age of P exceeds the present age of Q by 29 years. After 8 years, five times Q's age will be 17 years less than seven times P's age at that time. What is the present age (in years) of Q?

- A. 6
- B. 11
- C. 3
- D. 5



Q7 Mathematics

Which of the following numbers divides 6,30,605?

- A. 5
- B. 14
- C. 7
- D. 3



Q8 Mathematics

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 74 kg and 35 kg is:

- A. 52.8
- B. 49.8
- C. 51.8
- D. 50.8



Q9 Mathematics

Daksh travels 200 km at 50 km/hr, the next 252 km at 42 km/hr and the next 204 km at 51 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

- A. 38.25
- B. 53.31
- C. 53.45
- D. 46.86



Q10 Mathematics

The marked price of an article is ₹800. It is sold at two successive discounts of 24% and 15%, respectively. Find the selling price of the article.

A. ₹595.48

B. ₹625.78

C. ₹516.80



D. ₹686.42

Q11 Mathematics

A sum of money triples itself at a certain rate of compound interest in 11 years. In how many years will it amount to 27 times of itself?

A. 37 years

B. 33 years



C. 26 years

D. 31 years

Q12 Mathematics

The perimeter of a square is 76 m. Its area (in m^2) is:

A. 360

B. 361



C. 336

D. 372

Q13 Mathematics

The population of a district is 328000, out of which 164000 are males. 24% of the population is literate. If 34% males are literate, then what percentage of females are literate?

A. 11%

B. 17%

C. 14%



D. 13%

Q14 Mathematics

What is the perimeter of an equilateral triangle with side 13 cm?

A. 26 cm

B. 40 cm

C. 52 cm

D. 39 cm

**Q15 Mathematics**

Find the value of $47^{-8} \div 47^3 \times 47^{-19}$.

A. 47^{-30}



B. 47^{-27}

C. 47^{-37}

D. 47^{-24}

Q16 Mathematics

The number 253118139 is divisible by which of the following?

A. 8

B. 12

C. 5

D. 3

**Q17 Mathematics**

A number, when decreased by 6%, gives 3760. The number is:

A. 8000

B. 2000

C. 4000



D. 12000

Q18 Mathematics

The product of two consecutive natural numbers is 552. The greater of the two numbers is:

A. 18

B. 24



C. 27

D. 15

Q19 Mathematics

A bus travelling at 66 km/hr completes a journey in 15 hours. What should be its speed to cover the same distance in 5 hours?

A. 203 km/hr

B. 198 km/hr



C. 193 km/hr

D. 202 km/hr



Q20 Mathematics

Veer bought some sharpeners at the rate of ₹180/dozen. He sold them for ₹23 each. His profit percentage is ____% (rounded off to two decimal places).

A. 55.33

B. 57.33

C. 53.33



D. 51.33

Q21 Mathematics

A shopkeeper lists the price of a fan at 60% above its cost price and offers a 15% discount on its list price. If he earns a profit of ₹117, then what is the list price (in ₹) of the fan?

A. 283

B. 470

C. 520



D. 398

Q22 Mathematics

M and N start a business. M invests ₹68,000 more than N for 4 months and N invests for 7 months. M's share is ₹856 more than that of N, out of a total profit of ₹6,848. Find the capital contributed by M.

A. ₹1,22,400



B. ₹1,23,400

C. ₹1,23,000

D. ₹1,22,000

Q23 Mathematics

The LCM of $3^3 \times 8^2 \times 13$, $3^2 \times 13^2 \times 16$ and $8^3 \times 13^2 \times 16^2$ is:

A. $33 \times 82 \times 132 \times 16$

B. $33 \times 83 \times 132 \times 162$



C. $32 \times 82 \times 132 \times 163$

D. $32 \times 83 \times 13 \times 162$

Q24 Mathematics

If the third proportional of 9 and 60 be x, then what is the value of x?

A. 398

B. 400



C. 401

D. 402

Q25 Mathematics

Simplify $x(9x - 8) + 7(x^2 - 3) + 18$.

A. $16 \times 2 - 8x + 3$

B. $-16 \times 2 - 8x + 3$

C. $-16 \times 2 - 8x - 3$

D. $16 \times 2 - 8x - 3$

**Q26 Mathematics**

Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 5.5 years at 12% per annum rate of interest.

A. 314

B. 244

C. 364

D. 264

**Q27 Mathematics**

A shopkeeper offers the following three schemes. Which scheme has the maximum discount percent?

I. Two successive discounts of 15% and 20%.

II. Buy 4 get 2 free.

III. Buy 6 get 4 free

A. I only

B. Both I and II

C. III only



D. II only



Q28 Mathematics

Pipe A can fill a tank in 18 hours, pipe B can fill the same tank in 30 hours and pipe C can fill the same tank in 18 hours. The time taken by them to fill the same tank if they operate together is::

A. $2\frac{12}{13}$ hours

B. $13\frac{12}{13}$ hours

C. $6\frac{12}{13}$ hours



D. $11\frac{12}{13}$ hours

Q29 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 24^\circ$ and $\angle BAC = 112^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 90°

B. 92°



C. 77°

D. 99°

Q30 Mathematics

Pipe P can fill $\frac{2}{3}$ part of a tank in 16 hours, and pipe Q can fill $\frac{5}{6}$ part of the same tank in 20 hours.

Both P and Q were kept open for 2 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 8 hours. Pipes P, Q and R together can fill the empty tank in:

A. 16 hours



B. 8 hours

C. 26 hours

D. 29 hours



Mathematics

30 Questions • Answer Key

Q1 Mathematics

What is the equivalent single discount for successive discounts of 20% and 10%?

- A. 30%
- B. 25%
- C. 27%
- D. 28%



Q2 Mathematics

The population of a district is 362000, out of which 181000 are males. 47% of the population is literate. If 35% males are literate, then what percentage of females are literate?

- A. 58%
- B. 59%
- C. 62%
- D. 61%



Q3 Mathematics

A man driving a car at a speed of 54 km/hr crosses a bridge in 1.7 minutes. Find the length of the bridge.

- A. 2.13 km
- B. 0.92 km
- C. 2.58 km
- D. 1.53 km



Q4 Mathematics

Two cubes of edge 5 cm are joined to form a cuboid. Find the total surface area of the cuboid.

- A. 125 cm²
- B. 100 cm²
- C. 250 cm²
- D. 25 cm²



Q5 Mathematics

The LCM of the numbers 6.3 and 0.07 is:

- A. 63
- B. 0.63
- C. 0.063
- D. 6.3



Q6 Mathematics

If 2 times the mother's age is 26 years more than 4 times her daughter's age, and 3 times the daughter's age is 7 years less than the mother's age, then what is the difference (in years) between the ages of the mother and the daughter?

- A. 24
- B. 19
- C. 21
- D. 23



Q7 Mathematics

What smallest number should be added to 16809 so that the sum is completely divisible by 41?

- A. 2
- B. 3
- C. 4
- D. 1



Q8 Mathematics

Find the mean proportional between 19 and 76.

- A. 38
- B. 37
- C. 39
- D. 36



Q9 Mathematics

The sides of a triangle are 28 cm, 45 cm, and 53 cm. What is its area? (in cm²)

- A. 664
- B. 658
- C. 630
- D. 665



Q10 Mathematics

Evaluate 145^2 .

- A. 21075
- B. 20975
- C. 21005
- D. 21025



Q11 Mathematics

M and N start a business. M invests ₹79,000 more than N for 7 months and N invests for 6 months. M's share is ₹745 more than that of N, out of a total profit of ₹6,705. Find the capital contributed by M.

A. ₹12,00,000

B. ₹12,05,000

C. ₹11,80,000

D. ₹11,85,000

**Q12 Mathematics**

Find the value of $[682 \div \{20 + 2 \times (5 - 4)\}]$.

A. 31



B. 34

C. 28

D. 26

Q13 Mathematics

The cost of 6 pens and 19 pencils is ₹275. If the cost of a pen decreases by ₹7 and the cost of a pencil increases by ₹7, then the cost of 15 pens and 4 pencils is ₹132. What is the original cost of 6 pens and 2 pencils?

A. ₹89

B. ₹92

C. ₹88



D. ₹90

Q14 Mathematics

Rishi travels 198 km at 66 km/hr, the next 584 km at 73 km/hr and the next 656 km at 82 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

A. 79.25

B. 75.68



C. 82.07

D. 82.71

Q15 Mathematics

Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 5.5 years at 4% per annum rate of interest.

A. 88



B. 68

C. 188

D. 138

Q16 Mathematics

The average price of three items of furniture is ₹5,325. If their prices are in the ratio 3 : 5 : 7, the price of the cheapest item (in ₹) is:

A. 1,065

B. 3,195



C. 5,325

D. 7,455

Q17 Mathematics

Which of the following numbers divides 386937355?

A. 5



B. 14

C. 3

D. 15

Q18 Mathematics

A book seller gives a 4% discount on the marked price and gives one book free during vacation for buying every pack of 15 books of the same cost, and thus gains 35%. By what percentage is the marked price higher than the cost price?

A. 25%

B. 35%

C. 40%

D. 50%

**Q19 Mathematics**

The average runs scored by a batsman in 23 matches is 40. In the next 10 matches, the batsman scored an average of 16 runs. Find his average runs scored (rounded off to two decimals) in all the 33 matches.

A. 32.73



B. 31.73

C. 34.73

D. 33.73

Q20 Mathematics

A company earns a profit (in ₹) that is distributed among the company's three partners in the ratio of 5 : 8 : 17. If the difference between the smallest and the largest shares is ₹78,106, the total profit (in ₹) of the company is:

A. 1,95,361

B. 1,95,302

C. 1,95,278

D. 1,95,265



Q21 Mathematics

The HCF and LCM of two numbers are 11 and 330, respectively. If one of the numbers is 110, find the other one.

A. 33



B. 72

C. 90

D. 75

Q22 Mathematics

83 mirrors were purchased for ₹83, and 22 mirrors broke in transit. The trader sold the remaining mirrors at ₹3.60 each. Find his profit.

A. ₹144.50

B. ₹127.70

C. ₹136.60



D. ₹132.40

Q23 Mathematics

A can lay railway track between two given stations in 17 days and B can do the same job in 16 days. With the help of C, they did the job in 4 days only. Then, C alone can do the job in

A. $10\frac{27}{35}$ daysB. $13\frac{27}{35}$ daysC. $11\frac{27}{35}$ daysD. $7\frac{27}{35}$ days**Q24 Mathematics**

Pipe P can fill $\frac{2}{3}$ part of a tank in 24 hours, and pipe Q can fill $\frac{2}{3}$ part of the same tank in 16 hours.

Both P and Q were kept open for 4 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 5 hours. Pipes P, Q and R together can fill the empty tank in:

A. 62 hours

B. 88 hours

C. 79 hours

D. 72 hours

**Q25 Mathematics**

Simplify: $4\left(\left(\frac{6}{4}\right)x^2 - 25x + 12\right) - 6(x^2 + 5x - 13)$

A. $130x - 126$ B. $-130x + 126$ C. $-130x - 126$ D. $130x + 126$ 

Q26 Mathematics

If $\sec\theta + \tan\theta = s$, then find the value of $\frac{s^2 - 1}{s^2 + 1}$.

A. $\sin\theta$



B. $\sec\theta$

C. $\cot\theta$

D. $\operatorname{cosec}\theta$

Q27 Mathematics

By how much is 65% of 75 greater than $\frac{2}{5}$ of 45?

A. 24.75

B. 28.75

C. 27.75

D. 30.75

**Q28** Mathematics

A sum of ₹10,000 amounts to ₹12,321 in 2 years at a certain rate of interest per annum, compounded annually. The rate of interest per annum is:

A. 15%

B. 11%



C. 14%

D. 10%

Q29 Mathematics

ABCD is a quadrilateral in which $AB \parallel DC$, and E and F are the mid points of the diagonals AC and BD, respectively. If $AB = 12$ cm, $BC = 40$ cm, $DC = 30$ cm, and $AD = 45$ cm, then what is the length (in cm) of EF?

A. 13

B. 8

C. 5

D. 9



Q30 Mathematics

The selling price of 16 books is equal to the cost price of 8 books. Find the loss or gain percentage.

A. $\frac{100}{8}\%$ *loss*

B. 50% gain

C. $\frac{100}{8}\%$ *gain*

D. 50% loss



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Find the value of $48^{-17} \div 48^{12} \times 48^{-13}$.

A. 48-34

B. 48-42



C. 48-35

D. 48-37

Q2 Mathematics

The average of first 161 even numbers is

A. 162



B. 162.5

C. 163

D. 161.5

Q3 Mathematics

Four times P's present age exceeds Q's present age by 41 years. After 10 years, three times Q's age will be 33 years less than seven times P's age at that time. What is Q's present age?

A. 63



B. 67

C. 62

D. 71

Q4 Mathematics

The sum of the squares of two consecutive even natural numbers is 1684. The sum of the numbers is:

A. 42

B. 58



C. 48

D. 66

Q5 Mathematics

By selling 6 articles for a rupee, a man loses 30%. To gain 40% how many must he sell for a rupee?

A. 5

B. 4

C. 3



D. 2

Q6 Mathematics

Sneha, Yash and Rohan invested ₹1,090, ₹1,170 and ₹1,340, respectively to start a business. If the profit at the end of the year is ₹1,620, what is Rohan's share of the profit?

A. ₹603



B. ₹606

C. ₹602

D. ₹605

Q7 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 76^\circ$. E is a point on BC such that $\angle CAE = 74^\circ$. What is the measure of $\angle AEB$?

A. 99° B. 88° C. 77° D. 100°

Q8 Mathematics

The number of prime numbers lying between 476 and 491, both included, is:

A. 2

B. 5

C. 3



D. 4

Q9 Mathematics

The HCF and the LCM of two numbers are 83 and 498, respectively. If one of the numbers is 166, find the other one.

A. 230

B. 249



C. 166

D. 332



Q10 Mathematics

Yash travels 200 km at 25 km/hr, the next 210 km at 21 km/hr and the next 204 km at 51 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

A. 30.01

B. 27.91



C. 27.22

D. 18.68

Q11 Mathematics

Which of the following ratio is greatest?

A. 39 : 89

B. 34 : 77

C. 36 : 69

D. 46 : 75

**Q12 Mathematics**

Sapna invested ₹21,300 on simple interest, partly at 14% per annum and partly at 11% per annum. If she earns equal interests from the two investments after 3 years, then find the sum invested at 14% per annum (in ₹).

A. 9,372



B. 9,369

C. 9,374

D. 9,373

Q13 Mathematics

M and N start a business. M invests ₹38,000 more than N invests for 2 months and N for 3 months. M's share is ₹461 more than that of N, out of a total profit of ₹6,915. Find the capital contributed by M.

A. ₹91,200



B. ₹91,000

C. ₹91,400

D. ₹91,800

Q14 Mathematics

The marks scored by 10 students are given below.
19, 14, 11, 20, 18, 17, 14, 10, 11, 11
The mode of the given data is:

A. 14

B. 11



C. 20

D. 19

Q15 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 6.75% per annum rate of interest deposited on 26 February 2024 and withdrawn on 27 April 2024.

A. ₹44

B. ₹46

C. ₹43

D. ₹45

**Q16 Mathematics**

A number, when increased by 70%, gives 3230. The number is:

A. 3800

B. 1900



C. 950

D. 5700

Q17 Mathematics

The number 587407 is divisible by which of the following?

A. 41



B. 47

C. 34

D. 43

Q18 Mathematics

Simplify: $x(2x - 8) + 5(x^2 - 3) + 12$

A. $7x^2 - 8x + 3$

B. $-7x^2 - 8x - 3$

C. $7x^2 - 8x - 3$



D. $-7x^2 - 8x + 3$

Q19 Mathematics

The marked price of a shirt is ₹1,250; the shopkeeper offers a scheme of 'buy four get two free'. What amount does a customer have to pay for taking home six shirts?

A. ₹4,500

B. ₹5,200

C. ₹5,000



D. ₹4,200



Q20 Mathematics

On a marked price, the difference between the selling prices with a single discount of 40% and two successive discounts of 15% and 20% is ₹400, then find the marked price (in ₹).

A. ₹5,150

B. ₹5,000

C. ₹4,900

D. ₹4,950

Q21 Mathematics

A bus travelling at 75 km/hr completes a journey in 17 hours. What should be its speed to cover the same distance in 5 hours?

A. 261 km/hr

B. 247 km/hr

C. 264 km/hr

D. 255 km/hr

Q22 Mathematics

The number of prime numbers lying between 468 and 476, both included, is:

A. 2

B. 0

C. 1

D. 5

Q23 Mathematics

Shivam got an increase of 4% in his sales amount in the first year and 25% in the second year; also with this, his current sales are ₹1,40,400, what was his sales (in ₹) two years ago?

A. ₹1,08,000

B. ₹88,000

C. ₹1,12,320

D. ₹1,35,000

Q24 Mathematics

Pipe P can fill $\frac{7}{9}$ part of a tank in 14 hours and pipe Q can fill $\frac{5}{9}$ part of the same tank in 20 hours.

Both P and Q were kept open for 2 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 6 hours. Pipes P, Q and R together can fill the empty tank in:

A. 3 hours

B. 12 hours

C. 18 hours

D. 19 hours

Q25 Mathematics

If $3\sin^2 \theta + 7\cos^2 \theta = 4$, $0^\circ < \theta < 90^\circ$, then the value of θ (in degrees) is:

A. 30°

B. 60°

C. 45°

D. 15°



Q26 Mathematics

A can lay railway track between two given stations in 22 days and B can do the same job in 11 days. With the help of C, they did the job in 4 days only. Then, C alone can do the job in

A. $8\frac{4}{5}$ days



B. $17\frac{4}{5}$ days

C. $11\frac{4}{5}$ days

D. $13\frac{4}{5}$ days

Q27 Mathematics

The selling price of 20 books is equal to the cost price of 24 books. Find the loss or gain percentage on these books.

A. $\frac{100}{4}\%$ gain

B. $\frac{100}{4}\%$ loss

C. 20% gain



D. 20% loss

Q28 Mathematics

Find the circumference (in m) of the largest circle that can be drawn completely inside a rectangle whose dimensions are given as 249 m and 168 m.

(Take $\pi = \frac{22}{7}$.)

A. 521

B. 528



C. 536

D. 530

Q29 Mathematics

Find the volume of the cylinder whose height and radius are 7 cm and 3 cm, respectively (use $\pi = 3.14$).

A. 197.82 cm³



B. 195.68 cm³

C. 190.01 cm³

D. 193.58 cm³



Q30 Mathematics

The value of $\sqrt{144} + \sqrt{0.0225} - \sqrt{6.25} =$

A. 6.94

B. 9.65



C. 3.27

D. 7.22



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Mathematics

30 Questions • Answer Key

Q1 Mathematics

A, B and C started a business investing ₹610, ₹630 and ₹1,450, respectively. If B's share in the profit earned by them is ₹591. what is the difference in the profit (in ₹) earned by A and C?

A. ₹785

B. ₹788



C. ₹786

D. ₹791

Q2 Mathematics

₹15,500 were divided among A, B and C, such that 7 times the share of A = 4 times the share of B = 2 times the share of C. Find the share of A.

A. ₹2,480



B. ₹2,542

C. ₹2,479

D. ₹2,580

Q3 Mathematics

Simplify: $x(3x - 7) + 7(x^2 - 4) + 18$

A. $10x^2 - 7x + 10$ B. $10x^2 - 7x - 10$ C. $-10x^2 - 7x - 10$ D. $-10x^2 - 7x + 10$

Q4 Mathematics

Which of the following numbers divide 342165?

A. 3



B. 4

C. 7

D. 2

Q5 Mathematics

A person purchased a gift article for ₹1,800 after getting 20% discount. Find the marked price of the gift article.

A. ₹2,800

B. ₹2,150

C. ₹2,250



D. ₹2,500

Q6 Mathematics

The sum of the squares of two consecutive even natural numbers is 1924. The sum of the numbers is:

A. 68

B. 54

C. 62



D. 60

Q7 Mathematics

Evaluate: $(-9) - (-60) \div (-12) + (-2) \times 8$

A. -32

B. -29

C. -33

D. -30



Q8 Mathematics

A number, when increased by 60%, gives 3580. The number is:

A. 2237.5



B. 6712.5

C. 4475

D. 1118.75

Q9 Mathematics

Find the mean proportional of 98 and 18.

A. 45

B. 44

C. 42



D. 39

Q10 Mathematics

Sapna invested ₹20,300 on simple interest, partly at 10% per annum and partly at 4% per annum. If she earns equal interests from the two investments after 4 years, then find the sum invested at 10% per annum (in ₹).

A. 5,800



B. 5,797

C. 5,799

D. 5,801



Q11 Mathematics

The average of first 171 even numbers is

A. 172



B. 172.5

C. 173

D. 171.5

Q12 Mathematics

A sum of money triples itself at a certain rate of compound interest in 5 years. In how many years will it amount to 9 times of itself?

A. 10 years



B. 7 years

C. 19 years

D. 11 years

Q13 Mathematics

Which of the following numbers divides 78,89,73,289?

A. 12

B. 13



C. 18

D. 7

Q14 Mathematics

Vihaan has to reach Chennai which is 886 km away in 17 hours. His starting speed for 8 hours was 53 km/hr. For the next 150 km his speed was 50 km/hr. By what speed he must travel now so as to reach Chennai in the decided time of 17 hours?

A. 51 km/hr

B. 52 km/hr



C. 57 km/hr

D. 56 km/hr

Q15 Mathematics

If a regular polygon has 15 sides, then what is the measure (in degrees) of each interior angle?

A. 156°



B. 160°

C. 136°

D. 128°

Q16 Mathematics

A dealer runs a scheme offering 'buy 5 items and get 2 items free'. Each item is priced at ₹250. What is the total discount amount for a customer buying under this scheme?

A. ₹600

B. ₹700

C. ₹750

D. ₹500

**Q17 Mathematics**

The LCM of the numbers 3.8 and 0.052 is:

A. 4.94

B. 49.4



C. 0.494

D. 494

Q18 Mathematics

Salil got an increase of 4% in his sales amount in the first year and 24% in the second year; also with this, his current sales are ₹1,61,200, what was his sales (in ₹) two years ago?

A. ₹1,55,000

B. ₹1,30,000

C. ₹1,05,000

D. ₹1,25,000

**Q19 Mathematics**

9 years ago, the age of a father was 25 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 16



B. 21

C. 19

D. 18

Q20 Mathematics

A man goes to Indore from Bhopal at a speed of 12 km/hr and returns to Bhopal at speed of 24 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

A. 16



B. 21

C. 11

D. 12



Q21 Mathematics

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 76 kg and 35 kg is:

- A. 53.2
- B. 51.2
- C. 50.2
- D. 52.2

**Q22 Mathematics**

The number of prime numbers lying between 411 and 424, both included, is:

- A. 4
- B. 5
- C. 3
- D. 2

**Q23 Mathematics**

By selling 6 buttons for a rupee, a man loses 45%. To gain 10% how many must he sell for a rupee?

- A. 5
- B. 3
- C. 2
- D. 4

**Q26 Mathematics**

A can lay railway track between two given stations in 21 days and B can do the same job in 15 days. With the help of C, they did the job in 2 days only. Then, C alone can do the job in

- A. $10\frac{16}{27}$ days
- B. $12\frac{16}{27}$ days
- C. $2\frac{16}{27}$ days
- D. $8\frac{16}{27}$ days

**Q24 Mathematics**

A shopkeeper lists the price of a fan at 36% above its cost price and offers a 25% discount on its list price. If he earns a profit of ₹171, then what is the list price (in ₹) of the fan?

- A. 11,598
- B. 11,547
- C. 11,406
- D. 11,628

**Q25 Mathematics**

The total surface area of a cube having side 74 cm is:

- A. 32856 cm²
- B. 32857 cm²
- C. 32846 cm²
- D. 32896 cm²



Q27 Mathematics

If $\sin\theta + \operatorname{cosec}\theta = 2$, then the value of $\sin^{120}\theta + \operatorname{cosec}^{120}\theta$ is:

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

B. 2

C. 0

D. 1

Q28 Mathematics

The volume of a right circular cylinder whose height is 20 cm and circumference of the base is 44 cm is:

(Take $\pi = \frac{22}{7}$)

A. 5082 cu.cm

B. 3080 cu.cm

C. 1936 cu. cm

D. 7623 cu. cm

Q29 Mathematics

$$9 \times (19 \times (4^2)) \div 14 + 13 - 86$$

A. $\frac{852}{7}$

B. $\frac{857}{7}$

C. $\frac{853}{7}$

D. $\frac{856}{7}$

Q30 Mathematics

Anjani can do a certain piece of work in 30 days. Anjani and Khushbu can together do the same work in 16 days, and Anjani, Khushbu and Sushmita can do the same work together in 15 days. In how many days can Anjani and Sushmita do the same work?

A. $\frac{81}{3}$

B. $\frac{80}{3}$

C. $\frac{85}{4}$

D. $\frac{73}{5}$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Which of the following numbers is divisible by 5?

- A. 71,32,954
- B. 61,75,753
- C. 65,67,359
- D. 70,48,030



Q2 Mathematics

M and N start a business. M invests ₹35,000 more than N for 7 months and N invests for 5 months. M's share is ₹372 more than that of N, out of a total profit of ₹1,860. Find the capital contributed by M.

- A. ₹5,25,000
- B. ₹5,35,000
- C. ₹6,25,000
- D. ₹6,00,000



Q3 Mathematics

Find the least number of square tiles required to completely cover a floor of dimensions 12.15 m by 11.34 m.

- A. 250
- B. 210
- C. 150
- D. 230



Q4 Mathematics

What is the median of the following data?

57, 96, 60, 91, 69, 50, 72, 16, 78, 73, 55

- A. 69.5
- B. 68.5
- C. 69
- D. 70



Q5 Mathematics

Find the area of a triangle whose base is 28 cm and corresponding altitude is 15 cm.

- A. 280 cm²
- B. 260 cm²
- C. 210 cm²
- D. 240 cm²



Q6 Mathematics

The marked price of a watch is ₹2,860. A man bought the watch for ₹2,390.96, after getting two successive discounts, one of which is 12%. What is rate of the other discount?

- A. 7%
- B. 5%
- C. 8%
- D. 6%



Q7 Mathematics

Sapna invested ₹22,400 on simple interest, partly at 13% per annum and partly at 3% per annum. If she earns equal interests from the two investments after 7 years, then find the sum invested at 13% per annum (in ₹).

- A. 4,197
- B. 4,198
- C. 4,203
- D. 4,200



Q8 Mathematics

2 years ago, the age of a father was 22 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

- A. 16
- B. 20
- C. 21
- D. 17



Q9 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 39^\circ$. E is a point on BC such that $\angle CAE = 16^\circ$. What is the measure of $\angle AEB$?

- A. 74°
- B. 66°
- C. 82°
- D. 67°

**Q10 Mathematics**

In an election between two candidates 80% of the registered voters cast their vote and 15% of the votes polled were found invalid. The winning candidate got 60% of the valid votes and won the election by a margin of 1394 votes. How many voters were registered?

- A. 10252
- B. 10251
- C. 10248
- D. 10250

**Q11 Mathematics**

An item is marked at ₹8,000. Two successive discounts of 10% and 15% are allowed. Find the equivalent single discount rate.

- A. 23.5%
- B. 22.5%
- C. 24.5%
- D. 25.5%

**Q12 Mathematics**

Aarti, Anil, and Naveen invest ₹1,110, ₹1,760, and ₹1,230 respectively to start a business. If the profit at the end of the year is ₹1,620, then what is the share of Naveen in the profit?

- A. ₹486
- B. ₹488
- C. ₹483
- D. ₹487

**Q13 Mathematics**

One-third of a journey is covered at a speed of 2 km/hr, the next one-third of the journey is covered at a speed of 87 km/hr and the remaining journey is covered at a speed of 53 km/hr. The average speed (in km/hr, rounded off to 1 decimal place) for the entire journey is:

- A. 8.3
- B. 2.7
- C. 5
- D. 5.7

**Q14 Mathematics**

The average runs scored by a batsman in 23 matches is 41. In the next 10 matches, the batsman scored an average of 15 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

- A. 35.12
- B. 34.12
- C. 32.12
- D. 33.12

**Q15 Mathematics**

The sum of the squares of two consecutive even natural numbers is 2180. The sum of the numbers is:

- A. 66
- B. 74
- C. 82
- D. 72

**Q16 Mathematics**

I bought two speakers for ₹1,200. I sold the first one at a loss of 8% and the second at a gain of 22%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first speaker.

- A. 864
- B. 880
- C. 904
- D. 900

**Q17 Mathematics**

If the third proportional of 9 and 57 be x, then what is the value of x?

- A. 363
- B. 361
- C. 364
- D. 358



Q18 Mathematics

The number 814242541 is divisible by which of the following?

- A. 15
- B. 12
- C. 8
- D. 7

**Q19 Mathematics**

A number, when increased by 100%, gives 2790. The number is:

- A. 2790
- B. 697.5
- C. 1395
- D. 4185

**Q20 Mathematics**

A man driving a car at a speed of 84 km/hr crosses a bridge in 1.6 minutes. Find the length of the bridge.

- A. 2.24 km
- B. 1.81 km
- C. 1.82 km
- D. 2.46 km

**Q21 Mathematics**

By selling an article at $\frac{4}{14}$ of its actual selling price, Akash incurs a loss of 30%.

If he sells it at 54% of its actual selling price, then the profit percentage is:

- A. 32.3%
- B. 34.8%
- C. 33.8%
- D. 32.6%

**Q22 Mathematics**

Pipe A can fill a tank in 17 hours, pipe B can fill the same tank in 21 hours and pipe C can fill the same tank in 19 hours. The time taken by them to fill the same tank if they operate together is::

- A. $5\frac{309}{1079}$ hours
- B. $13\frac{309}{1079}$ hours
- C. $11\frac{309}{1079}$ hours
- D. $6\frac{309}{1079}$ hours



Q23 Mathematics

A cylindrical rod has an outer curved surface area of 1500 cm^2 . If the length of the rod is 68 cm, then the outer radius (in cm) of the rod, correct to two places of decimal, is:

(Take $\pi = \frac{22}{7}$)

A. 6.61

B. 3.51



C. 3.87

D. 3.69

Q24 Mathematics

The value of $\sqrt{196} + \sqrt{0.0324} - \sqrt{6.76} =$

A. 2.41

B. 6.44

C. 11.58



D. 4.64

Q25 Mathematics

Find the value of $5^{-23} \times 16^{-23} \times 21^{-23}$.

A. $\frac{1}{1726^{23}}$

B. $\frac{1}{1634^{23}}$

C. $\frac{1}{1680^{23}}$



D. $\frac{1}{1725^{23}}$

Q26 Mathematics

Simplify: $2\left(\left(\frac{3}{2}\right)x^2 - 25x + 14\right) - 3(x^2 + 4x - 13)$

A. $-62x - 67$

B. $-62x + 67$



C. $62x + 67$

D. $62x - 67$



Q27 Mathematics

Anjani can do a certain piece of work in 24 days. Anjani and Khushbu can together do the same work in 20 days, and Anjani, Khushbu and Sushmita can do the same work together in 8 days. In how many days can Anjani and Sushmita do the same work?

A. $\frac{54}{9}$

B. $\frac{61}{8}$

C. $\frac{60}{7}$ 

D. $\frac{57}{7}$

Q28 Mathematics

Evaluate: $\frac{\sin^2 40^\circ + \sin^2 50^\circ}{\cos^2 40^\circ + \cos^2 50^\circ} - \frac{\sec^2 50^\circ - \cot^2 40^\circ}{\cos^2 20^\circ + \cos^2 70^\circ}$

A. 0 

B. -1

C. -2

D. 2

Q29 Mathematics

The value of $\frac{5}{4} + \left(\frac{1}{1 + \frac{4}{7}} \right) - \frac{3}{4}$ is

A. $\frac{35}{12}$

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

C. $\frac{29}{32}$

D. $\frac{28}{19}$



Q30 Mathematics

A sum of ₹625 amounts to ₹841 in 2 years at a certain rate of interest per annum, compounded annually. The rate of interest per annum is:

A. 18%

B. 19%

C. 17%

D. 16%



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 12 months.

A. ₹576

B. ₹48 ✓

C. ₹96

D. ₹68

Q2 Mathematics

4 men can complete a piece of work in 10 days, while 3 women can do it in 16 days. In how many days can 6 women and 5 men complete this work?

A. 3 days

B. 5 days

C. 4 days ✓

D. 6 days

Q3 Mathematics

If the third proportional of 16 and 40 be x , then what is the value of x ?

A. 100 ✓

B. 99

C. 102

D. 101

Q4 Mathematics

A, B and C invested a sum in the ratio of 8 : 36 : 76, respectively. If they earned a total profit of ₹3,030 at the end of the year, what is the difference between the shares of B and C?

A. ₹1,046

B. ₹1,010 ✓

C. ₹993

D. ₹1,051

Q5 Mathematics

The value of $\sqrt{1.0201}$ is _____.

A. 10.1

B. 101

C. 1.02

D. 1.01 ✓

Q6 Mathematics

Find the value of $[135 \div \{25 + 5 \times (7 - 3)\}]$.

A. 2

B. 4

C. 3 ✓

D. 5

Q7 Mathematics

37 light bulbs were purchased for ₹37, and 19 light bulbs broke in transit. The trader sold the remaining light bulbs at ₹3.90 each. Find his profit.

A. ₹39.80

B. ₹33.90

C. ₹33.20 ✓

D. ₹23.60

Q8 Mathematics

The number of prime numbers lying between 393 and 401, both included, is:

A. 3

B. 1

C. 7

D. 2 ✓

Q9 Mathematics

The LCM of the numbers 4.7 and 0.04 is:

A. 0.094

B. 0.94

C. 9.4 ✓

D. 94



Q10 Mathematics

A man walks to a viewpoint and returns to the starting point by his car maintaining a constant speed and thus, takes a total time of 4 hours 45 minutes. He would have gained 2 hours by driving both ways. How long would it have taken for him to walk both ways with the same walking speed?

- A. 7 hours 15 minutes
- B. 6 hours 30 minutes
- C. 6 hours 45 minutes ✓
- D. 5 hours 45 minutes

Q11 Mathematics

The number 541096943 is divisible by which of the following?

- A. 103
- B. 97 ✓
- C. 87
- D. 107

Q12 Mathematics

Which of the following numbers divides 718754023?

- A. 21
- B. 3
- C. 18
- D. 13 ✓

Q13 Mathematics

Zeeshan travels 612 km at 68 km/hr, the next 312 km at 39 km/hr and the next 620 km at 62 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

- A. 66.13
- B. 58.22
- C. 51.18
- D. 57.19 ✓

Q14 Mathematics

Find the area of a triangle whose sides are 9 cm, 12 cm, and 15 cm.

- A. 42 cm²
- B. 54 cm² ✓
- C. 60 cm²
- D. 48 cm²

Q15 Mathematics

The product of two consecutive natural numbers is 462. The greater of the two numbers is:

- A. 23
- B. 22 ✓
- C. 24
- D. 21

Q16 Mathematics

Salil's salary was first reduced by 25% and subsequently raised by 12%. What percentage was his final salary lower than his initial salary?

- A. 25%
- B. 12%
- C. 16% ✓
- D. 3%

Q17 Mathematics

The average price of three items of furniture is ₹5,300. If their prices are in the ratio 3 : 5 : 7, the price of the cheapest item (in ₹) is:

- A. 3,180 ✓
- B. 5,300
- C. 1,060
- D. 7,420

Q18 Mathematics

A vendor claims to sell wheat at a loss of 20%, but he cheats by using weights that are 35% less than the stated weight. What is his actual profit percentage (round off to two decimal places)?

- A. 24.74%
- B. 21.33%
- C. 23.08% ✓
- D. 24.72%

Q19 Mathematics

Three times the present age of P exceeds the present age of Q by 23 years. After 7 years, six times Q's age will be 30 years less than six times P's age at that time. What is the present age (in years) of Q?

- A. 11
- B. 3
- C. 4 ✓
- D. 8



Q20 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 44^\circ$. E is a point on BC such that $\angle CAE = 23^\circ$. What is the measure of $\angle AEB$?

A. 69°



B. 77°

C. 64°

D. 56°

Q21 Mathematics

₹30,600 was divided among A, B and C such that 8 times the share of A = 4 times the share of B = 3 times the share of C. Find the share of A.

A. ₹5,377

B. ₹5,594

C. ₹5,400



D. ₹5,252

Q22 Mathematics

The average runs scored by a batsman in 23 matches is 43. In the next 10 matches, the batsman scored an average of 14 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

A. 35.21

B. 34.21



C. 36.21

D. 33.21

Q23 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 7.5% per annum rate of interest deposited on 8 February 2024 and withdrawn on 9 April 2024.

A. 48

B. 51

C. 50



D. 49

Q24 Mathematics

An article marked at ₹500 is sold for ₹425. What is the percentage discount?

A. 15%



B. 14%

C. 12%

D. 13%

Q25 Mathematics

An article is marked at ₹1,500 and sold for ₹1,200. Find the percentage discount.

A. 25%

B. 20%



C. 30%

D. 15%

Q26 Mathematics

If the radius of the base of a right circular cylinder is decreased by 18% and its height is increased by 141%, then what is the percentage increase (closest integer) in its volume?

A. 74%

B. 43%

C. 62%



D. 92%



Q27 Mathematics

Pipe A can fill a tank in 15 hours, pipe B can fill the same tank in 27 hours and pipe C can fill the same tank in 10 hours. The time taken by them to fill the same tank if they operate together is::

A. $4\frac{10}{11}$ hours



B. $9\frac{10}{11}$ hours

C. $8\frac{10}{11}$ hours

D. $12\frac{10}{11}$ hours

Q28 Mathematics

Simplify: $2\left(\left(\frac{6}{2}\right)x^2 - 22x + 15\right) - 6(x^2 + 5x - 18)$

A. $-74x + 138$



B. $-74x - 138$

C. $74x + 138$

D. $74x - 138$

Q29 Mathematics

Aditya is standing on a light house of 150 m height and watching two boats on either side with angles of depression of 30° and 60° , respectively. Find the distance between the two boats.

A. $200\sqrt{3}$ m



B. 250 m

C. $150\sqrt{3}$ m

D. 300 m

Q30 Mathematics

By how much is 65% of 65 greater than $\frac{2}{5}$ of 25?

A. 29.25

B. 30.25

C. 32.25



D. 26.25



Mathematics

30 Questions • Answer Key

Q1 Mathematics

The product of the LCM and HCF of two numbers is 150. The difference of the two numbers is 5. Find the numbers.

- A. 15, 20
- B. 20, 25
- C. 15, 10
- D. 30, 25



Q2 Mathematics

Neha, Rajat and Avinash invested ₹1,210, ₹1,650 and ₹1,300, respectively to start a business. If the profit at the end of the year is ₹1,200, what is Avinash's share of the profit?

- A. ₹375
- B. ₹376
- C. ₹377
- D. ₹374



Q3 Mathematics

Evaluate: $(-9) - (-60) \div (-10) + (-4) \times 7$

- A. -42
- B. -43
- C. -46
- D. -45



Q4 Mathematics

If 69% of first number is equal to four-fifths of second number, what is the ratio of first number to the second number?

- A. 80 : 69
- B. 79 : 68
- C. 76 : 64
- D. 84 : 71



Q5 Mathematics

Sapna invested ₹21,600 on simple interest, partly at 14% per annum and partly at 4% per annum. If she earns equal interests from the two investments after 6 years, then find the sum invested at 14% per annum (in ₹).

- A. 4,802
- B. 4,798
- C. 4,801
- D. 4,800



Q6 Mathematics

Find the perimeter of a rectangle whose length and breadth are 5 cm and 8 cm.

- A. 13 cm
- B. 20 cm
- C. 39 cm
- D. 26 cm



Q7 Mathematics

The length of each of the two equal sides of an isosceles triangle is 85 cm and the length of its base is 72 cm. The area (in cm^2) of the triangle is:

- A. 2767
- B. 2784
- C. 2772
- D. 2756



Q8 Mathematics

The sum of the squares of two consecutive even natural numbers is 2740. The sum of the numbers is:

- A. 80
- B. 88
- C. 70
- D. 74



Q9 Mathematics

Two pipes can fill a cistern, individually, in 33 minutes and 22 minutes, respectively. There is a pipe located at the bottom of the cistern to empty it. If all the three pipes are opened simultaneously, then the empty cistern gets filled in 18 minutes. How long will the pipe at the bottom of the tank take to empty the completely filled cistern if no other pipe is then open?

A. 39.5 minutes

B. 49.5 minutes

C. 99 minutes

D. 79 minutes

Q10 Mathematics

The average of first 168 even numbers is

A. 169

B. 169.5

C. 168.5

D. 170

Q11 Mathematics

The sum of five numbers is 655. The average of the first two numbers is 79 and the third number is 135. Find the average of the remaining two numbers.

A. 214

B. 181

C. 215

D. 182

Q12 Mathematics

A man walks to a viewpoint and returns to the starting point by his car maintaining constant speed and thus, takes a total time of 4 hours 15 minutes. He would have gained 4 hours by driving both ways. How long would it have taken for him to walk both ways with the same walking speed?

A. 8 hours 45 minutes

B. 8 hours 15 minutes

C. 7 hours 15 minutes

D. 9 hours 30 minutes

Q13 Mathematics

If the 6-digit number N37M01 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M - N = 3$

B. $M + N = -3$

C. $M - N = 1$

D. $M = N$

Q14 Mathematics

In an election between two candidates, 80% of the registered voters cast their vote and 2% of the votes polled were found invalid. The winning candidate got 52% of the valid votes and won the election by a margin of 1568 votes. How many voters were registered?

A. 49999

B. 50002

C. 50000

D. 49997

Q15 Mathematics

A dealer marks his goods at 40% above the cost price and allows a discount of 45%. What would be his loss percentage?

A. 18%

B. 23%

C. 24%

D. 5%

Q16 Mathematics

Find the value of: $[640 \div \{22 + 6 \times (4 - 5)\}]$.

A. 40

B. 36

C. 45

D. 37

Q17 Mathematics

In covering a distance of 96 km, Anmol takes 6 hours more than Nikhil. If Anmol doubles his speed, then he would take 2 hours less than Nikhil. Anmol's speed is:

A. 16 km/hr

B. 12 km/hr

C. 2 km/hr

D. 6 km/hr



Q18 Mathematics

A number, when increased by 70%, gives 3570. The number is:

A. 1050

B. 4200

C. 2100



D. 6300

Q19 Mathematics

A pair of shoes is sold by a retailer at a 20% discount on the marked price, but the retailer still makes a 28% profit on the cost price. What is the ratio of the marked price to the cost price of the shoes?

A. 7 : 4

B. 3 : 5

C. 8 : 5



D. 9 : 7

Q20 Mathematics

The number 769501 is divisible by which of the following?

A. 105

B. 90

C. 97



D. 96

Q21 Mathematics

₹73,500 were divided among A, B and C such that 6 times the share of A = 9 times the share of B = 2 times the share of C. Find the share of A.

A. ₹15,648

B. ₹15,848

C. ₹15,750



D. ₹15,570

Q22 Mathematics

Which of the following numbers is divisible by 22?

A. 65,80,350

B. 71,32,950



C. 64,67,614

D. 61,36,901

Q23 Mathematics

Rishi bought some pens at the rate of ₹180/dozen. He sold them for ₹21 each. His profit percentage is ____%.

A. 44

B. 40



C. 38

D. 42

Q24 Mathematics

If 2 times a son's age is added to his father's age, the sum is 42 years. If 2.2 times the father's age is added to the son's age, the sum is 89 years. What is the father's age (in years)?

A. 42

B. 40



C. 37

D. 44

Q25 Mathematics

An article is sold at a profit of 54%. If the cost price is increased by ₹75 and the selling price is reduced by ₹66, then the profit would be 40.8%. What is the original cost price (in ₹) of the article?

A. 1,300



B. 1,500

C. 1,000

D. 1,400

Q26 Mathematics

A solid cuboid with dimensions 24 cm × 16 cm × 10 cm is melted to form smaller solid cubes with sides of length 4 cm. Determine the number of cubes formed.

A. 60



B. 62

C. 68

D. 64



Q27 Mathematics

A sum of ₹10,00,000 amounts to ₹10,92,727 in 3 years at a certain rate of interest per annum, compounded annually. The rate of interest per annum is:

A. 2%

B. 4%

C. 6%

D. 3%

**Q28 Mathematics**

Pipe A can fill a tank in 20 hours, pipe B can fill the same tank in 22 hours and pipe C can fill the same tank in 14 hours. The time taken by them to fill the same tank if they operate together is::

A. $14\frac{255}{257}$ hoursB. $2\frac{255}{257}$ hoursC. $5\frac{255}{257}$ hoursD. $9\frac{255}{257}$ hours**Q29 Mathematics**

Find the value of x satisfying: $2(5x^2 - 5) - 5(2x^2 + 9x - 5) = 18$

A. $\frac{4}{15}$ B. $-\frac{1}{15}$ C. $\frac{2}{15}$ D. $-\frac{7}{15}$ 

If $\sec\theta + \tan\theta = \frac{3}{2}$, then the value of $\cos\theta$ is:

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

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

C. $\frac{8}{17}$

D. $\frac{12}{13}$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹5,520, and the rate of interest is 20% per annum compounded annually, then the sum is:

- A. ₹22,875
- B. ₹22,695
- C. ₹23,000
- D. ₹23,405



Q2 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 3% per month in 6 months.

- A. 38
- B. 216
- C. 36
- D. 18



Q3 Mathematics

X, Y and Z invested a sum in the ratio of 58 : 72 : 20, respectively. If they earned a total profit of ₹3,750 at the end of the year, what is the difference between the shares of Y and Z?

- A. ₹1,254
- B. ₹1,404
- C. ₹1,231
- D. ₹1,300



Q4 Mathematics

The sum of five numbers is 655. The average of the first two numbers is 80 and the third number is 107. Find the average of the remaining two numbers.

- A. 187
- B. 194
- C. 188
- D. 195



Q5 Mathematics

A bus travelling at 86 km/hr completes a journey in 7 hours. What should be its speed to cover the same distance in 14 hours?

- A. 53 km/hr
- B. 35 km/hr
- C. 42 km/hr
- D. 43 km/hr



Q6 Mathematics

Evaluate 74^2 .

- A. 5456
- B. 5526
- C. 5486
- D. 5476



Q7 Mathematics

Six times the present age of P exceeds the present age of Q by 46 years. After 10 years, six times Q's age will be 18 years less than five times P's age at that time. What is the present age of Q (in years)?

- A. 6
- B. 5
- C. 1
- D. 2



Q8 Mathematics

The average of first 172 even numbers is

- A. 174
- B. 173.5
- C. 173
- D. 172.5



Q9 Mathematics

Simplify $x(5x - 9) + 7(x^2 - 2) + 17$.

- A. $12x^2 - 9x + 3$
- B. $-12x^2 - 9x + 3$
- C. $12x^2 - 9x - 3$
- D. $-12x^2 - 9x - 3$



Q10 Mathematics

Ashish bought some rulers at the rate of ₹180/dozen. He sold them for ₹24 each. His profit percentage is ____%.

- A. 58
- B. 64
- C. 60
- D. 62

**Q11 Mathematics**

The difference between the lengths of two parallel sides of a trapezium is 6 cm. The perpendicular distance between them is 24 cm. If the area of the trapezium is 648 cm^2 , then what is the length of the parallel sides?

- A. 30 cm, 24 cm
- B. 36 cm, 30 cm
- C. 28 cm, 22 cm
- D. 23 cm, 29 cm

**Q12 Mathematics**

A customer buys two products, each product being worth ₹350, with a "buy one get one 30% off" deal. What is the total amount paid by the customer?

- A. ₹490
- B. ₹595
- C. ₹560
- D. ₹455

**Q13 Mathematics**

A bag is marked at ₹2,000. A shopkeeper offers two successive discounts of 10% and 5%. What is the final price the customer pays?

- A. ₹1,700
- B. ₹1,750
- C. ₹1,710
- D. ₹1,800

**Q14 Mathematics**

If the radius of the base of a right circular cylinder is decreased by 27% and its height is increased by 165%, then what is the percentage increase (closest integer) in its volume?

- A. 36%
- B. 20%
- C. 41%
- D. 48%

**Q15 Mathematics**

₹42,100 were divided among A, B and C such that 8 times the share of A = 3 times the share of B = 6 times the share of C. Find the share of A.

- A. ₹8,360
- B. ₹8,538
- C. ₹8,420
- D. ₹8,278

**Q16 Mathematics**

If the third proportional of 4 and 16 be x, then what is the value of x?

- A. 64
- B. 66
- C. 67
- D. 62

**Q17 Mathematics**

A number, when increased by 60%, gives 3590. The number is:

- A. 4487.5
- B. 2243.75
- C. 1121.875
- D. 6731.25

**Q18 Mathematics**

Which of the following numbers divide 862026417?

- A. 7
- B. 6
- C. 11
- D. 5

**Q19 Mathematics**

The product of two positive numbers is 9245. If the first number is five times of the second number, then the sum of the two numbers is:

- A. 257
- B. 258
- C. 269
- D. 266



Q20 Mathematics

The ratio of two numbers is 5 : 6 and their HCF is 7. Find their LCM.

A. 210



B. 42

C. 84

D. 35

Q21 Mathematics

Daksh travels 774 km at 86 km/hr, the next 567 km at 63 km/hr and the next 135 km at 27 km/hr. What is his average speed (in km/hr, rounded off to two decimal places) for the whole journey?

A. 64.17



B. 63.06

C. 70.24

D. 70.02

Q22 Mathematics

The number 934725 is divisible by which of the following?

A. 10

B. 3



C. 6

D. 2

Q23 Mathematics

In an election between two candidates, 80% of the registered voters cast their vote and 21% of the votes polled were found invalid. The winning candidate got 51% of the valid votes and won the election by a margin of 1817 votes. How many voters were registered?

A. 143751

B. 143750



C. 143753

D. 143752

Q24 Mathematics

The value of $\frac{2}{5} + \left(\frac{1}{1 + \frac{5}{7}} \right) - \frac{2}{5}$ is

A. $\frac{10}{17}$

B. $\frac{14}{13}$

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

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

**Q25 Mathematics**

Find the volume of a cylinder with radius 5 cm and height 21 cm (use $\pi = \frac{22}{7}$).

A. 1320 cm³

B. 1650 cm³



C. 1200 cm³

D. 1500 cm³



Q26 Mathematics

If $\cot A + \cos A = p$, $\cot A - \cos A = q$, then what is the value of $p^2 - q^2$?

A. $4\sqrt{pq}$



B. $2\sqrt{pq}$

C. $\sqrt{pq}$

D. $3\sqrt{pq}$

Q27 Mathematics

The value of $\sqrt{324} + \sqrt{0.0324} - \sqrt{8.41}$ is _____.

A. 15.28



B. 10.83

C. 6.97

D. 16.61

Q28 Mathematics

A can lay railway track between two given stations in 20 days and B can do the same job in 12 days. With the help of C, they did the job in 2 days only. Then, C alone can do the job in

A. $9\frac{8}{11}$ days

B. $4\frac{8}{11}$ days

C. $11\frac{8}{11}$ days

D. $2\frac{8}{11}$ days

**Q29 Mathematics**

Isha can do a certain piece of work in 24 days. Isha and Smriti can together do the same work in 20 days, and Isha, Smriti and Ashlesha can do the same work together in 12 days. In how many days can Isha and Ashlesha do the same work together?

A. $\frac{41}{3}$

B. $\frac{35}{4}$

C. $\frac{40}{3}$



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



Q30 Mathematics

A trader claims to sell wheat at a profit of 29%, but also dishonestly uses a weight which is 30% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 79%

B. 84%



C. 86%

D. 87%



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Mathematics

30 Questions • Answer Key

Q1 Mathematics

A man makes a monthly payment equal to 33% of his monthly salary towards debt repayment. He spends 25% of the remaining salary and saves ₹402. His monthly salary (in ₹) is:

A. 734

B. 771

C. 800



D. 707

Q2 Mathematics

Veer bought some pens at the rate of ₹180/dozen. He sold them for ₹22 each. His profit percentage is _____% (rounded off to two decimal places).

A. 44.67

B. 46.67



C. 48.67

D. 50.67

Q3 Mathematics

The sum of the squares of two consecutive even natural numbers is 2452. The sum of the numbers is:

A. 46

B. 70



C. 54

D. 52

Q4 Mathematics

Sapna invested ₹20,900 on simple interest, partly at 10% per annum and partly at 9% per annum. If she earns equal interests from the two investments after 8 years, then find the sum invested at 10% per annum (in ₹).

A. 9,902

B. 9,897

C. 9,901

D. 9,900



Q5 Mathematics

Tiger and Disha have to travel from Delhi to Kanpur in their respective cars. Tiger is driving at 100 km/hr while Disha is driving at 35 km/hr. Find the time taken by Disha to reach Kanpur if Tiger takes 14 hours.

A. 36 hours

B. 45 hours

C. 40 hours



D. 47 hours

Q6 Mathematics

Find the value of: $57^{-9} \div 57^4 \times 57^{-10}$

A. 57-25

B. 57-18

C. 57-33

D. 57-23



Q7 Mathematics

A company earns a profit (in ₹) that is distributed among the company's three partners in the ratio of 13 : 3 : 9. If the difference between the smallest and the largest shares is ₹36,846, the total profit (in ₹) of the company is:

A. 92,110

B. 92,167

C. 92,115



D. 92,051

Q8 Mathematics

A wholesaler offers a trade discount of 15% on a product with a marked price of ₹12,000. After the trade discount, a scheme discount of 10% is applied on the reduced price. What is the final price the customer has to pay?

A. ₹9,180



B. ₹8,750

C. ₹8,400

D. ₹9,520



Q9 Mathematics

Given that $132^{0.14} = x$, $132^{0.26} = y$ and $x^z = y^2$, then the value of z is close to:

- A. 5.03
- B. 4.84
- C. 3.71
- D. 2.37

**Q10 Mathematics**

The average of first 156 even numbers is

- A. 156.5
- B. 157.5
- C. 158
- D. 157

**Q11 Mathematics**

The LCM of the numbers 6.3 and 0.07 is:

- A. 0.063
- B. 0.63
- C. 63
- D. 6.3

**Q12 Mathematics**

Five solid cubes, each of volume 15625 cm^3 , are joined end to end to form a cuboid. What is the lateral surface area (in cm^2) of the cuboid?

- A. 7591
- B. 7280
- C. 7500
- D. 7593

**Q13 Mathematics**

M and N start a business. M invests ₹49,000 more than N for 6 months and N invests for 7 months. M's share is ₹207 more than that of N, out of a total profit of ₹3,519. Find the capital contributed by M.

- A. ₹2,05,873
- B. ₹2,05,705
- C. ₹2,05,777
- D. ₹2,05,800

**Q14 Mathematics**

A sum of ₹625 is invested in a bank at 16% interest per annum compounded annually. On maturity, the amount payable becomes ₹841. Find the time period of the investment.

- A. 2 years
- B. 1.5 years
- C. 2.5 years
- D. 1 year

**Q15 Mathematics**

If the third proportional of 60 and 30 is x , then what is the value of x ?

- A. 16
- B. 13
- C. 18
- D. 15

**Q16 Mathematics**

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 74 kg and 37 kg is:

- A. 52.2
- B. 53.2
- C. 50.2
- D. 51.2

**Q17 Mathematics**

A balloon's radius increases to 5 times itself when the air is pumped in it. Find the ratio in the surface areas of the balloon after pumping the air to that before pumping the air.

- A. 25 : 1
- B. 5 : 1
- C. 10 : 1
- D. 1 : 5

**Q18 Mathematics**

In covering a distance of 112 km, Salaj takes 3 hours more than Kevin. If Salaj doubles his speed, then he would take 5 hours less than Kevin. Salaj's speed is:

- A. 6 km/hr
- B. 7 km/hr
- C. 10 km/hr
- D. 5 km/hr



Q19 Mathematics

The number 648679059 is divisible by which of the following?

A. 10

B. 3



C. 11

D. 8

Q20 Mathematics

Find the difference between a single discount of 20% and two successive discounts of 10% and 10% on a gift of ₹600.

A. ₹3

B. ₹5

C. ₹1

D. ₹6

**Q21 Mathematics**

A shopkeeper lists the price of a fan at 25% above its cost price and offers a 16% discount on its list price. If he earns a profit of ₹64, then what is the list price (in ₹) of the fan?

A. 1,419

B. 1,354

C. 1,701

D. 1,600

**Q24 Mathematics**

Pipe P can fill $\frac{4}{9}$ part of a tank in 20 hours, and pipe Q can fill $\frac{2}{9}$ part of the same tank in 30 hours.

Both P and Q were kept open for 3 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 4 hours. Pipes P, Q and R together can fill the empty tank in:

A. 147 hours

B. 117 hours

C. 135 hours



D. 115 hours

Q22 Mathematics

If 3 times Mary's present age is 29 years more than 5 times Diya's present age, and 2 times Diya's present age is 9 years less than Mary's present age, then what is the difference (in years) between the ages of Mary and Diya?

A. 8

B. 7

C. 9

D. 11

**Q23 Mathematics**

The number 267533 is divisible by which of the following?

A. 6

B. 12

C. 7



D. 5



Q25 Mathematics

The value of $\frac{3}{2} + \left(\frac{1}{1 + \frac{5}{8}} \right) - \frac{4}{3}$ is

A. $\frac{61}{78}$



B. $\frac{54}{85}$

C. $\frac{52}{79}$

D. $\frac{68}{71}$

Q26 Mathematics

Simplify: $3 \left(\left(\frac{6}{3} \right) x^2 - 22x + 14 \right) - 6(x^2 + 6x - 15)$

A. $102x + 132$

B. $102x - 132$

C. $-102x + 132$



D. $-102x - 132$

Q27 Mathematics

By how much is 65% of 65 greater than $\frac{2}{5}$ of 55?

A. 20.25



B. 14.25

C. 18.25

D. 17.25

Q28 Mathematics

If $K \times \frac{\sin A - 2\sin^3 A}{2\cos^3 A - \cos A} = 1$, then the value of K is:

A. cosecA

B. tanA

C. 1

D. cotA



Q29 Mathematics

A can do a work in 16 days and B can do the same work in 22 days. If they work on it together for 2 days, then what fraction of the work is left?

A. $\frac{73}{88}$

B. $\frac{79}{88}$

C. $\frac{69}{88}$



D. $\frac{71}{88}$

Q30 Mathematics

ABCD is a quadrilateral whose sides are equal and $\angle ABC = 90^\circ$. If the opposite sides are parallel and opposite angles are equal, then ABCD is a:

A. rectangle

B. rhombus

C. square



D. kite



Mathematics

30 Questions • Answer Key

Q1 Mathematics

What smallest number should be added to 63130 so that the sum is completely divisible by 13?

- A. 9
- B. 13
- C. 8
- D. 11



Q2 Mathematics

9 men can complete a piece of work in 8 days, while 4 women can do it in 9 days. In how many days can 2 women and 4 men complete this work?

- A. 8 days
- B. 9 days
- C. 11 days
- D. 6 days



Q3 Mathematics

A man goes to Lucknow from Kanpur at a speed of 15 km/hr and returns to Kanpur at speed of 30 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

- A. 22
- B. 14
- C. 19
- D. 20



Q4 Mathematics

The length of the base of a triangle is 2 cm more than the corresponding height. If the area of the triangle is 220 cm^2 , then find the length of the base of the triangle.

- A. 26 cm
- B. 24 cm
- C. 18 cm
- D. 22 cm



Q5 Mathematics

If the volume of the cuboid is 440 cm^3 and the area of its base is 88 cm^2 , the height of the cuboid is:

- A. 44 cm
- B. 5 cm
- C. 2 cm
- D. 8 cm



Q6 Mathematics

A shopkeeper marked a toy car at ₹850 and sold it by allowing 15% discount, thereby gaining 25%. Find the cost price of the toy car.

- A. ₹662
- B. ₹638
- C. ₹578
- D. ₹723



Q7 Mathematics

If the third proportional of 28 and 70 be x, then what is the value of x?

- A. 174
- B. 175
- C. 173
- D. 172



Q8 Mathematics

₹37,600 were divided among A, B and C such that 4 times of A = 6 times of B = 7 times of C. Find the share of A.

- A. ₹16,600
- B. ₹17,000
- C. ₹16,800
- D. ₹17,200



Q9 Mathematics

The number 476643 is divisible by which of the following?

- A. 3
- B. 4
- C. 8
- D. 2



Q10 Mathematics

The product of two positive numbers is 1805. If the first number is five times the second number, then the sum of the two numbers is:

A. 126

B. 114



C. 127

D. 107

Q11 Mathematics

If 5 times a son's age is added to his father's age, the sum is 42 years. If 2.8 times the father's age is added to the son's age, the sum is 76 years. What is the father's age (in years)?

A. 26



B. 31

C. 21

D. 30

Q12 Mathematics

Find the value of $55^{-6} \div 55^5 \times 55^{-8}$.

A. 55^{-13}

B. 55^{-19}



C. 55^{-17}

D. 55^{-20}

Q13 Mathematics

A number, when increased by 100%, gives 2810. The number is:

A. 4215

B. 2810

C. 1405



D. 702.5

Q14 Mathematics

The HCF and the LCM of two numbers are 4 and 2600, respectively. If one of the numbers is 104, find the other one.

A. 250

B. 200

C. 50

D. 100

**Q15 Mathematics**

Train A leaves station M at 6:35 AM and reaches station N at 3:35 PM on the same day. Train B leaves station N at 8:35 AM and reaches station M at 2:35 PM on the same day. Find the time when trains A and B meet.

A. 11:43 AM

B. 12:23 PM

C. 11:03 AM

D. 11:23 AM

**Q16 Mathematics**

The LCM of the numbers 4.9 and 0.008 is:

A. 98

B. 0.98

C. 0.098

D. 9.8

**Q17 Mathematics**

A, B and C invested a sum in the ratio of 72 : 12 : 36, respectively. If they earned a total profit of ₹3,560 at the end of year, what is the difference between the shares of B and C?

A. ₹712



B. ₹610

C. ₹620

D. ₹722

Q18 Mathematics

A laptop is marked at ₹50,000. A shopkeeper offers a festival discount of 10%, followed by an additional discount of 8% on the reduced price. What is the final selling price of the laptop?

A. ₹41,800

B. ₹42,200

C. ₹42,000

D. ₹41,400

**Q19 Mathematics**

I bought two shirts for ₹1,200. I sold the first one at a loss of 7% and the second at a gain of 28%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first shirt.

A. 980

B. 944

C. 960



D. 984



Q20 Mathematics

The median of the observations 6, 48, 32, 3, 37 and 18 is:

A. 30

B. 25



C. 27

D. 32

Q21 Mathematics

The average of first 148 odd natural numbers, is:

A. 147.5

B. 149

C. 148.5

D. 148

**Q22 Mathematics**

The income of Raman is ₹44,000. He saves 18.5% of his income. If his income increases by 17% and expenditure increases by 40%, then his savings will:

A. increase by ₹6,859

B. increase by ₹6,862

C. decrease by ₹6,864



D. decrease by ₹6,860

Q23 Mathematics

What sum of money (in ₹) will amount to ₹2,280 at 5% per annum simple interest in 5 years?

A. ₹1,874

B. ₹9,120

C. ₹1,774

D. ₹1,824

**Q24 Mathematics**

Pipe A can fill a tank in 13 hours, pipe B can fill the same tank in 26 hours and pipe C can fill the same tank in 17 hours. The time taken by them to fill the same tank if they operate together is::

A. $4\frac{57}{77}$ hours

B. $8\frac{57}{77}$ hours

C. $5\frac{57}{77}$ hours



D. $9\frac{57}{77}$ hours

Q25 Mathematics

Simplify the following.

$$3\left(\left(\frac{7}{3}\right)x^2 - 25x + 12\right) - 7(x^2 + 8x - 16)$$

A. $131x + 148$

B. $131x - 148$

C. $-131x - 148$

D. $-131x + 148$



Q26 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 38^\circ$ and $\angle BAC = 65^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 34

B. 37

C. 26



D. 11

Q27 Mathematics

Simplify: $\operatorname{cosec}\theta(1 - \cos\theta)(\operatorname{cosec}\theta + \cot\theta)$

A. $\cos\theta$ B. -1 C. $\sin\theta$

D. 1

**Q28 Mathematics**

The value of $\sqrt{289} + \sqrt{0.0324} - \sqrt{4.41}$ is ____.

A. 15.08



B. 6.9

C. 13.69

D. 8.28

Q29 Mathematics

By selling an article at $\frac{4}{10}$ of its actual selling price, Nirbhay incurs a loss of 28%.

If he sells it at 82% of its actual selling price, then the profit percentage is:

A. 50.3%

B. 49.5%

C. 48.8%

D. 47.6%

**Q30 Mathematics**

The simple interest on a certain sum for $4\frac{2}{9}$ years at the rate of 4.5% per annum is ₹8,778.

What will be the amount payable on the same sum at the rate of 5.5% per annum simple interest in $2\frac{5}{7}$ years?

A. ₹53,097



B. ₹53,091

C. ₹53,083

D. ₹53,089



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Simplify $x(3x - 6) + 5(x^2 - 4) + 19$.A. $-8x^2 - 6x - 1$ B. $8x^2 - 6x + 1$ C. $8x^2 - 6x - 1$ ✓D. $-8x^2 - 6x + 1$

Q2 Mathematics

Which of the following numbers divides 769501?

A. 90

B. 105

C. 96

D. 97 ✓

Q3 Mathematics

Find the mean proportional between 16 and 256.

A. 66

B. 65

C. 64 ✓

D. 63

Q4 Mathematics

X, Y and Z invest a sum in the ratio of 16 : 85 : 54, respectively. If they earned a total profit of ₹3,750 at the end of the year, then what is the difference between share of Y and Z?

A. ₹750 ✓

B. ₹676

C. ₹742

D. ₹706

Q5 Mathematics

An 8% discount and a 5% discount in succession is equivalent to a total discount of ____.

A. 13.5%

B. 13.4%

C. 12.6% ✓

D. 12.5%

Q6 Mathematics

7 years ago, the age of a father was 20 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 13 ✓

B. 12

C. 16

D. 11

Q7 Mathematics

A cuboid has dimensions 18 m × 12 m × 9 m. What is its total surface area?

A. 998 m²B. 1128 m²C. 1062 m²D. 972 m² ✓

Q8 Mathematics

Which of the following numbers divides 71,67,10,501?

A. 13 ✓

B. 19

C. 16

D. 20

Q9 Mathematics

5 men can complete a piece of work in 16 days, while 3 women can do it in 15 days. In how many days can 9 women and 4 men complete this work?

A. 2 days

B. 4 days ✓

C. 1 day

D. 3 days



Q10 Mathematics

The LCM of two numbers is seven times their HCF. The difference between the HCF and LCM is 222. Find the product of the two numbers.

A. 9276

B. 9158

C. 9583



D. 9086

Q11 Mathematics

The marks scored by 10 students are given below.
12, 14, 14, 15, 12, 16, 12, 10, 19, 11

The mode of the given data is:

A. 14

B. 15

C. 12



D. 19

Q12 Mathematics

A vertical post of a height 18 ft is broken at a certain height and its upper part, not completely separated, meets the ground at an angle of 30° . Find the height at which the post is broken.

A. 4 ft

B. 6 ft



C. 7 ft

D. 5 ft

Q13 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 8 months.

A. ₹52

B. ₹384

C. ₹64

D. ₹32

**Q14 Mathematics**

92 mirrors were purchased for ₹92, and 35 mirrors broke in transit. The trader sold the remaining mirrors at ₹4.40 each. Find his profit.

A. ₹161.70

B. ₹157.90

C. ₹153.10

D. ₹158.80

**Q15 Mathematics**

The diagonals of a rectangle PQRS meet at O. If $\angle QOR = 36^\circ$, then find $\angle OPS$.

A. 108°

B. 72°



C. 54°

D. 144°

Q16 Mathematics

The product of two consecutive natural numbers is 870. The greater of the two numbers is:

A. 41

B. 21

C. 30



D. 38

Q17 Mathematics

The average of first 154 odd natural numbers, is:

A. 154



B. 153.5

C. 154.5

D. 155

Q18 Mathematics

Daksh travels 168 km at 21 km/hr, the next 100 km at 20 km/hr and the next 371 km at 53 km/hr. What is his average speed (in km/hr) for the whole journey?

A. 23.34

B. 31.95



C. 29.63

D. 36.61

Q19 Mathematics

A bus travelling at 36 km/hr completes a journey in 5 hours. What should be its speed to cover the same distance in 10 hours?

A. 18 km/hr



B. 22 km/hr

C. 17 km/hr

D. 9 km/hr



Q20 Mathematics

₹44,200 was divided among A, B and C such that 3 times the share of A = 9 times the share of B = 4 times the share of C. Find the share of A.

A. ₹21,216



B. ₹21,081

C. ₹21,304

D. ₹21,178

Q21 Mathematics

In an election between two candidates, 90% of the registered voters cast their vote and 18% of the votes polled were found invalid. The winning candidate got 51% of the valid votes and won the election by a margin of 1845 votes. How many voters were registered?

A. 124997

B. 124999

C. 124998

D. 125000

**Q22 Mathematics**

Evaluate: $(-9) - (-60) \div (-6) + (-4) \times 6$

A. -45

B. -43



C. -46

D. -42

Q23 Mathematics

The value of $\sqrt{289} + \sqrt{0.0324} - \sqrt{7.29} =$

A. 12.59

B. 11.21

C. 14.48



D. 9.08

Q24 Mathematics

The selling price of 22 books is equal to the cost price of 11 books. Find the loss or gain percentage.

A. $\frac{100}{11}\%$ gain

B. 50% loss



C. 50% gain

D. $\frac{100}{11}\%$ loss



Q25 Mathematics

The simple interest on a certain sum for $6\frac{1}{2}$ years at the rate of 6.4% per annum is ₹9,204.

What will be the amount payable on the same sum at the rate of 7.6% per annum simple interest in $6\frac{2}{3}$ years?

A. ₹33,335



B. ₹33,336

C. ₹33,348

D. ₹33,340

Q26 Mathematics

The value of $\frac{5}{2} + \left(\frac{1}{1 + \frac{3}{8}} \right) - \frac{3}{5}$ is

A. $\frac{284}{109}$

B. $\frac{290}{107}$

C. $\frac{289}{110}$



D. $\frac{297}{118}$

Q27 Mathematics

A table has a marked price of ₹8,000. A shopkeeper purchased it at two successive discounts of 20% and 25%. He sold the table for ₹8,000 after spending ₹300 on transportation. Find his profit percentage.

A. $56\frac{44}{51}\%$



B. $56\frac{42}{51}\%$

C. $56\frac{43}{51}\%$

D. $56\frac{45}{51}\%$



Q28 Mathematics

A hollow spherical shell is made of a metal of density 15 g/cm^3 . Its internal and external radii are 8 cm and 11 cm, respectively. What is the mass (in kg) of the shell ?

(Take $\pi = \frac{22}{7}$.)

A. 48.48

B. 52.67

C. 52.96

D. 51.48

**Q29 Mathematics**

By how much is 65% of 65 greater than $\frac{3}{5}$ of 25?

A. 25.25

B. 24.25

C. 27.25

D. 21.25

**Q30 Mathematics**

Pipe A can fill a tank in 12 hours, pipe B can fill the same tank in 30 hours and pipe C can fill the same tank in 18 hours. The time taken by them to fill the same tank if they operate together is::

A. $5\frac{25}{31} \text{ hours}$

B. $15\frac{25}{31} \text{ hours}$

C. $9\frac{25}{31} \text{ hours}$

D. $8\frac{25}{31} \text{ hours}$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

What is the mode of the following data?

67, 75, 81, 70, 65, 61, 65, 84, 75, 76, 85, 89, 62, 84, 72, 74, 89, 68, 83, 60, 82, 82, 66, 77, 75

A. 75



B. 70

C. 67

D. 81

Q2 Mathematics

Four times the present age of P exceeds the present age of Q by 19 years. After 7 years, twice the age of Q will be 47 years less than seven times the age of P at that time. What is the present age of Q (in years)?

A. 91

B. 85



C. 79

D. 86

Q3 Mathematics

If 38% of first number is equal to two-sevenths of second number, what is the ratio of first number to the second number?

A. 103 : 132

B. 101 : 129

C. 100 : 133



D. 96 : 131

Q4 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹9,828, and the rate of interest is 12% per annum compounded annually, then the sum is:

A. ₹72,185

B. ₹73,125



C. ₹73,520

D. ₹73,475

Q5 Mathematics

Shan bought some sharpeners at the rate of ₹150 a dozen. He sold them for ₹19 each. His profit percentage is ____%.

A. 56

B. 50

C. 54

D. 52



Q6 Mathematics

Sapna invested ₹22,800 on simple interest, partly at 14% per annum and partly at 7% per annum. If she earns equal interests from the two investments after 6 years, then find the sum invested at 14% per annum (in ₹).

A. 7,597

B. 7,603

C. 7,599

D. 7,600



Q7 Mathematics

The H.C.F. and the L.C.M. of two numbers are 3 and 672, respectively. If one of the numbers is 96, find the other one.

A. 48

B. 21



C. 94

D. 3

Q8 Mathematics

The sum of the squares of two consecutive odd natural numbers is 34. The sum of the numbers is:

A. 8



B. 28

C. 18

D. 24



Q9 Mathematics

Find the value of: $47^{-11} \div 47^{16} \times 47^{-10}$

A. 47-44

B. 47-27

C. 47-37



D. 47-35

Q10 Mathematics

Ritik and Sanjay together invested ₹62,400 in a business. At the end of the year, out of a total profit of ₹15,600, Sanjay's share was ₹1,900. What was the difference between their investments?

A. ₹47,000

B. ₹46,800

C. ₹47,200



D. ₹46,200

Q11 Mathematics

X, Y and Z invested a sum in the ratio of 32 : 40 : 68, respectively. If they earned a total profit of ₹3,210 at the end of the year, what is the difference between the shares of Y and Z?

A. ₹777

B. ₹642



C. ₹742

D. ₹771

Q12 Mathematics

A shopkeeper purchased an item listed at ₹1,600 after receiving two successive discounts of 35% and 5% from the wholesaler. The shopkeeper then changed the list price so as to gain 25% after allowing 5% discount. For how much did he list the item?

A. ₹1,235

B. ₹1,200

C. ₹1,388

D. ₹1,300

**Q13 Mathematics**

A number when increased by 100% gives 2740. The number is:

A. 685

B. 2740

C. 1370



D. 4110

Q14 Mathematics

Given that $54^{0.2} = x$, $54^{0.47} = y$ and $x^z = y^3$, then the value of z is close to:

A. 7.05



B. 6.54

C. 9.48

D. 6.17

Q15 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 65^\circ$. E is a point on BC such that $\angle CAE = 48^\circ$. What is the measure of $\angle AEB$?

A. 77°

B. 76°

C. 79°

D. 73°

**Q16 Mathematics**

The number 966181 is divisible by which of the following?

A. 38

B. 36

C. 37



D. 30

Q17 Mathematics

Train A leaves station M at 6:45 AM and reaches station N at 3:45 PM on the same day. Train B leaves station N at 8:45 AM and reaches station M at 2:45 PM on the same day. Find the time when trains A and B meet.

A. 11:53 AM

B. 11:13 AM

C. 12:23 PM

D. 11:33 AM

**Q18 Mathematics**

The average of first 158 even numbers is

A. 158.5

B. 160

C. 159



D. 159.5



Q19 Mathematics

The largest six digit number which when divided by 3, 5, 7 and 9 leaves remainders 1, 3, 5 and 7, respectively, is:

A. 999808



B. 999998

C. 999893

D. 999685

Q20 Mathematics

Two successive discounts of 65% and 24% are equivalent to a single discount of ____.

A. 77%

B. 74.5%

C. 73.4%



D. 76.6%

Q21 Mathematics

A man driving a car at a speed of 72 km/hr crosses a bridge in 4.9 minutes. Find the length of the bridge.

A. 5.68 km

B. 6.91 km

C. 6.29 km

D. 5.88 km

**Q22 Mathematics**

In an election between two candidates 87% of the registered voters cast their vote and 5% of the votes polled were found invalid. The winning candidate got 52% of the valid votes and won the election by a margin of 1653 votes. How many voters were registered?

A. 50003

B. 50000



C. 49998

D. 50001

Q23 Mathematics

A hollow spherical shell is made of a metal of density 7 g/cm^3 . Its internal and external radii are 1 cm and 2 cm, respectively. What is the weight (in grams) of the shell?

(Use $\pi = \frac{22}{7}$, and round off your answer to the nearest gram.)

A. 221

B. 273

C. 205



D. 214

Q24 Mathematics

Find the curved surface area of a sphere whose radius is 2.8 cm.

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

A. 98.56cm²



B. 95.32cm²

C. 97.52cm²

D. 91.28cm²



Q25 Mathematics

A can do a work in 11 days and B can do the same work in 19 days. If they work on it together for 6 days, then what fraction of the work is left?

A. $\frac{29}{209}$



B. $\frac{24}{209}$

C. $\frac{26}{209}$

D. $\frac{32}{209}$

Q26 Mathematics

Isha can do a certain piece of work in 22 days. Isha and Smriti can together do the same work in 11 days, and Isha, Smriti and Ashlesha can do the same work together in 10 days. In how many days can Isha and Ashlesha do the same work?

A. $\frac{61}{5}$

B. $\frac{49}{4}$

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

D. $\frac{55}{3}$

**Q27 Mathematics**

The value of $\frac{3}{4} + \left(\frac{1}{1 + \frac{3}{7}} \right) - \frac{3}{4}$ is

A. $\frac{7}{10}$



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

C. $\frac{16}{19}$

D. $\frac{5}{16}$



Q28 Mathematics

The selling price of 50 books is equal to the cost price of 39 books. Find the loss or gain percentage.

A. 22% loss



B. $\frac{100}{11}\%$ gain

C. 22% gain

D. $\frac{100}{11}\%$ loss

Q29 Mathematics

Solve the following:

$$(\operatorname{cosec}23^\circ - \sin23^\circ)(\tan23^\circ + \cot23^\circ)(\sec23^\circ - \cos23^\circ)$$

A. 0

B. 1



C. $\tan23^\circ$

D. $\sin23^\circ$

Q30 Mathematics

Find the value of x satisfying: $2(4x^2 - 6) - 4(2x^2 + 9x - 3) = 18$

A. $-\frac{9}{2}$

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



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

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



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Mathematics

30 Questions • Answer Key

Q1 Mathematics

Which of the following numbers divides 311916399?

A. 7

B. 3



C. 2

D. 13

Q2 Mathematics

Aanya has to reach Bangalore which is 861 km away in 15 hours. His starting speed for 8 hours was 37 km/hr. For the next 136 km his speed was 34 km/hr. By what speed he must travel now so as to reach Bangalore in the decided time of 15 hours?

A. 146 km/hr

B. 147 km/hr

C. 141 km/hr

D. 143 km/hr



Q3 Mathematics

Prashant and Nisha have to travel from Delhi to Kanpur in their respective cars. Prashant is driving at 72 km/hr while Nisha is driving at 64 km/hr. Find the time taken by Nisha to reach Kanpur if Prashant takes 16 hours.

A. 8 hours

B. 24 hours

C. 18 hours



D. 20 hours

Q4 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹3,342, and the rate of interest is 20% per annum compounded annually, then the sum is:

A. ₹14,075

B. ₹14,900

C. ₹13,285

D. ₹13,925



Q5 Mathematics

A shirt is marked at ₹800. A shopkeeper offers a discount of 25% on it. What is the selling price of the shirt after the discount?

A. ₹700

B. ₹750

C. ₹600



D. ₹650

Q6 Mathematics

If 18% of first number is equal to two-fifths of second number, what is the ratio of first number to the second number?

A. 21 : 6

B. 20 : 9



C. 18 : 7

D. 16 : 10

Q7 Mathematics

The H.C.F. and the L.C.M. of two numbers are 51 and 306 respectively. If one of the numbers is 102, find the other one.

A. 153



B. 175

C. 102

D. 204

Q8 Mathematics

In an election between two candidates, 80% of the registered voters cast their vote and 20% of the votes polled were found invalid. The winning candidate got 60% of the valid votes and won the election by a margin of 2144 votes. How many voters were registered?

A. 16749

B. 16747

C. 16753

D. 16750



Q9 Mathematics

Evaluate: $16 + 12 \div 6 - 3 \times 4$

A. 5

B. 6



C. 9

D. 8

Q10 Mathematics

Aman and Pawan together invested ₹76,500 in a business. At the end of the year, out of a total profit of ₹20,000, Pawan's share was ₹4,800. What was the difference between their investments?

A. ₹39,780



B. ₹39,923

C. ₹41,601

D. ₹40,609

Q11 Mathematics

The HCF of two numbers is 9 and the product of the two numbers is 8100. How many pairs of numbers satisfy the given conditions?

A. 4

B. 3

C. 2



D. 5

Q12 Mathematics

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 75 kg and 35 kg is:

A. 52

B. 51



C. 53

D. 50

Q13 Mathematics

If 2 times a son's age is added to his father's age, the sum is 36 years. If 2.5 times the father's age is added to the son's age, the sum is 72 years. What is the father's age (in years)?

A. 23

B. 31

C. 32

D. 27

**Q14 Mathematics**

An amount of ₹616 is divided among three persons in the ratio of 5 : 12 : 11. The difference between the largest and the smallest shares (in ₹) in the distribution is:

A. 112

B. 69

C. 86

D. 154

**Q15 Mathematics**

The average of first 150 odd natural numbers, is:

A. 150.5

B. 149.5

C. 150



D. 151

Q16 Mathematics

The product of two consecutive positive natural numbers is 650. The greater of the two numbers is:

A. 29

B. 31

C. 26



D. 43

Q17 Mathematics

If the 6-digit number N65M04 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M = N$

B. $M + N = 5$

C. $M - N = 1$

D. $M - N = -5$

**Q18 Mathematics**

An item is marked at ₹1,200. Successive discounts of 20% and 10% are given. What is the final selling price?

A. ₹880

B. ₹900

C. ₹864



D. ₹960



Q19 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 3% per month in 7 months.

- A. 42
- B. 21
- C. 41
- D. 252

**Q20 Mathematics**

Nitin bought some sharpeners at the rate of ₹180/dozen. He sold them for ₹20 each. His profit percentage is ____% (rounded off to two decimal places).

- A. 33.33
- B. 37.33
- C. 35.33
- D. 31.33

**Q21 Mathematics**

The perimeter of a square is 340 m. Its area (in m²) is:

- A. 7225
- B. 7207
- C. 7204
- D. 7200

**Q22 Mathematics**

By selling an article at $\frac{8}{13}$ of its actual selling price, Ramesh incurs a loss of 20%.

If he sells it at 85% of its actual selling price, then the profit percentage is:

- A. 9.3%
- B. 8.2%
- C. 10.5%
- D. 12.3%

**Q23 Mathematics**

Pipe P can fill $\frac{3}{7}$ part of a tank in 12 hours, and pipe Q can fill $\frac{5}{6}$ part of the same tank in 10 hours.

Both P and Q were kept open for 2 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 5 hours. Pipes P, Q and R together can fill the empty tank in:

- A. 14 hours
- B. 27 hours
- C. 24 hours
- D. 33 hours



Q24 Mathematics

Find the value of x satisfying: $3(2x^2 - 5) - 2(3x^2 + 4x - 8) = 20$

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



B. $-\frac{29}{8}$

C. $-\frac{11}{8}$

D. $-\frac{21}{8}$

Q25 Mathematics

$18 \times (3 \times (3^2)) \div 13 + 66 - 74$

A. $\frac{389}{13}$

B. $\frac{387}{13}$

C. $\frac{391}{13}$

D. $\frac{382}{13}$

**Q26 Mathematics**

A can do a work in 17 days and B can do the same work in 19 days. If they work on it together for 6 days, then what fraction of the work is left?

A. $\frac{104}{323}$

B. $\frac{107}{323}$



C. $\frac{110}{323}$

D. $\frac{109}{323}$



Q27 Mathematics

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

A. 716 cm^2

B. 816 cm^2

C. 516 cm^2

D. 616 cm^2



Q28 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 17^\circ$ and $\angle BAC = 125^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 105°

B. 106°

C. 95°

D. 104°



Q29 Mathematics

$\frac{1}{\sec A(1 - \tan A)} + \frac{1}{\operatorname{cosec} A(1 - \cot A)}$ is equal to:

A. $\cos A + \sin A$

B. $\cos A \sin A$

C. $\frac{1}{\cos A \sin A}$

D. $\cos A - \sin A$



Q30 Mathematics

By how much is 65% of 75 greater than $\frac{4}{5}$ of 15?

A. 36.75

B. 30.75

C. 33.75

D. 34.75



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Mathematics

30 Questions • Answer Key

Q1 Mathematics

The average of first 153 even numbers is

A. 154



B. 154.5

C. 155

D. 153.5

Q2 Mathematics

Simplify the given expression.

$$x(7x - 5) + 7(x^2 - 2) + 18$$

A. $-14x^2 - 5x + 4$ B. $-14x^2 - 5x - 4$ C. $14x^2 - 5x + 4$ D. $14x^2 - 5x - 4$

Q3 Mathematics

Find the surface area of a sphere whose diameter is equal to 22 cm.

A. $484\pi \text{ cm}^2$ B. $1019\pi \text{ cm}^2$ C. $502\pi \text{ cm}^2$ D. $153\pi \text{ cm}^2$

Q4 Mathematics

What is the mode of the following data?

87, 65, 70, 81, 68, 62, 82, 78, 81, 82, 74, 75, 90, 67, 86, 86, 81, 90, 69, 78, 65, 78, 76, 63, 70, 81

A. 87

B. 70

C. 81



D. 65

Q5 Mathematics

A sum of money triples itself at a certain rate of compound interest in 8 years. In how many years will it amount to 9 times of itself?

A. 16 years



B. 17 years

C. 10 years

D. 9 years

Q6 Mathematics

The radius of a spherical balloon increases from 5 cm to 10 cm when more air is added to it. What is the ratio of the volume of the original balloon and the volume of the inflated balloon?

A. 1 : 8



B. 1 : 6

C. 1 : 4

D. 1 : 2

Q7 Mathematics

A computer is marked at ₹70,000 and a discount of 16% is offered on it. An additional discount is offered to students. If a student pays ₹57,036 for the computer, then how much additional discount percentage did the student receive?

A. 3%



B. 2%

C. 5%

D. 7%

Q8 Mathematics

Evaluate: $(-9) - (-60) \div (-6) + (-4) \times 9$

A. -57

B. -54

C. -55



D. -58



Q9 Mathematics

Ritesh and Gauri have to travel from Delhi to Kanpur in their respective cars. Ritesh is driving at 66 km/hr while Gauri is driving at 99 km/hr. Find the time taken by Gauri to reach Kanpur if Ritesh takes 9 hours.

- A. 12 hours
- B. 2 hours
- C. 6 hours
- D. 13 hours

**Q10 Mathematics**

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 54^\circ$. E is a point on BC such that $\angle CAE = 72^\circ$. What is the measure of $\angle AEB$?

- A. 100°
- B. 95°
- C. 98°
- D. 108°

**Q11 Mathematics**

Sapna invested ₹21,200 on simple interest, partly at the rate of 13% per annum and partly at the rate of 3% per annum. If she earns equal interests from the two investments after 8 years, then find the sum invested at the rate of 13% per annum (in ₹).

- A. 3,973
- B. 3,972
- C. 3,975
- D. 3,976

**Q12 Mathematics**

Abdul and Mohsin together invested ₹76,800 in a business. At the end of the year, out of a total profit of ₹19,000, Mohsin's share was ₹3,800. What was the difference between their investments?

- A. ₹46,080
- B. ₹44,260
- C. ₹45,780
- D. ₹46,300

**Q13 Mathematics**

If the 6-digit number N23M40 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

- A. $M + N = -5$
- B. $M - N = 1$
- C. $M = N$
- D. $M - N = 5$

**Q14 Mathematics**

Given that $50^{0.92} = x$, $50^{0.26} = y$ and $x^z = y^3$, then the value of z is close to:

- A. 0.83
- B. 0.85
- C. 3.85
- D. 0.39

**Q15 Mathematics**

Six times the present age of P exceeds the present age of Q by 11 years. After 10 years, three times Q's age will be 27 years less than six times P's age at that time. What is the present age (in years) of Q?

- A. 7
- B. 6
- C. 16
- D. 12

**Q16 Mathematics**

Which of the following numbers is divisible by 5?

- A. 7132956
- B. 6567359
- C. 6175753
- D. 7048030

**Q17 Mathematics**

I bought two bicycles for ₹1,200. I sold the first one at a loss of 10% and the second at a gain of 20%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first bicycle.

- A. 784
- B. 800
- C. 824
- D. 820



Q18 Mathematics

Which of the following ratios is the greatest?

- A. 33 : 72
- B. 45 : 85
- C. 28 : 74
- D. 40 : 53

**Q19 Mathematics**

The current population of a town is 10,630. It increases by 25% and 50% in two successive years but decreases by 68% in the third year. What is the population of the town at the end of the third year?

- A. 6378
- B. 6374
- C. 6380
- D. 6376

**Q20 Mathematics**

A train of length 490 m overtakes a man moving at a speed of 9 km/hr (in the same direction) in 12 seconds. How much time (in seconds) will it take this train to completely cross another train that has is 500 m long, moving in the opposite direction at a speed of 42 km/hr?

- A. 18
- B. 32
- C. 36
- D. 25

**Q21 Mathematics**

The number 630605 is divisible by which of the following?

- A. 14
- B. 7
- C. 5
- D. 3

**Q22 Mathematics**

A vendor claims to sell wheat at a loss of 65%, but he cheats by using weights that are 70% less than the stated weight. What is his actual profit percentage (round off to two decimal places)?

- A. 11.62%
- B. 15.18%
- C. 16.67%
- D. 7.43%

**Q23 Mathematics**

The marked price of a watch is ₹3,480. It is sold for ₹2,958. The rate of discount is ____.

- A. 13%
- B. 10%
- C. 15%
- D. 17%

**Q24 Mathematics**

The product of two consecutive positive natural numbers is 182. The greater of the two numbers is:

- A. 7
- B. 14
- C. 27
- D. 26

**Q25 Mathematics**

6 men can complete a piece of work in 8 days, while 3 women can do it in 18 days. In how many days can 9 women and 8 men complete this work?

- A. 8 days
- B. 6 days
- C. 1 day
- D. 3 days

**Q26 Mathematics**

An amount of ₹402 is divided among three persons in the ratio of 13 : 8 : 9. The difference between the largest and the smallest shares (in ₹) in the distribution is:

- A. 136
- B. 67
- C. 56
- D. 100

**Q27 Mathematics**

If the 6-digit number N46M37 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

- A. $M - N = 1$
- B. $M = N$
- C. $M + N = 2$
- D. $M - N = -2$



Q28 Mathematics

A can lay railway track between two given stations in 18 days and B can do the same job in 10 days. With the help of C, they did the job in 4 days only. Then, C alone can do the job in

A. $14\frac{10}{17}$ days

B. $11\frac{10}{17}$ days

C. $19\frac{10}{17}$ days

D. $10\frac{10}{17}$ days

**Q29** Mathematics

If $\frac{\sin A + \cos A}{\cos A} = \frac{17}{12}$, then find the value of $\sin A$ and $\cos A$ respectively.

A. $\frac{13}{5}, \frac{13}{12}$

B. $\frac{5}{13}, \frac{12}{13}$

C. $\frac{17}{5}, \frac{16}{5}$

D. $\frac{5}{17}, \frac{5}{16}$

**Q30** Mathematics

By how much is 65% of 65 greater than $\frac{1}{5}$ of 35?

A. 32.25

B. 29.25

C. 33.25

D. 35.25



Mathematics

30 Questions • Answer Key

Q1 Mathematics

A bus travelling at 95 km/hr completes a journey in 10 hours. What should be in its speed to cover the same distance in 5 hours?

- A. 187 km/hr
- B. 193 km/hr
- C. 190 km/hr
- D. 182 km/hr



Q2 Mathematics

7 years ago, the age of a father was 13 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

- A. 8
- B. 7
- C. 6
- D. 4



Q3 Mathematics

The number 788973289 is divisible by which of the following?

- A. 18
- B. 13
- C. 7
- D. 12



Q4 Mathematics

The population of a district is 329000, out of which 209000 are males. 44% of the population is literate. If 44% males are literate, then what percentage of females are literate?

- A. 42%
- B. 45%
- C. 44%
- D. 46%



Q5 Mathematics

The average of first 152 odd natural numbers, is:

- A. 151.5
- B. 152.5
- C. 152
- D. 153



Q6 Mathematics

Find the value of: $[836 \div \{30 + 2 \times (7 - 3)\}]$.

- A. 27
- B. 22
- C. 20
- D. 21



Q7 Mathematics

The average price of three items of furniture is ₹16,050. If their prices are in the ratio 3 : 5 : 7, the price of the cheapest item (in ₹) is:

- A. 7,490
- B. 3,210
- C. 9,630
- D. 5,350



Q8 Mathematics

Kushal and Brijesh together invested ₹37,100 in a business. At the end of the year, out of a total profit of ₹12,000, Brijesh's share was ₹5,700. What was the difference between their investments?

- A. ₹1,742
- B. ₹2,347
- C. ₹3,438
- D. ₹1,855



Q9 Mathematics

Train A leaves station M at 8:00 a.m. and reaches station N at 3:00 p.m. on the same day. Train B leaves station N at 10:00 a.m. and reaches station M at 3:00 p.m. on the same day. Find the time when Trains A and B meet.

A. 6: 47 a.m.

B. 5:46 a.m.

C. 12:05 p.m. ✓

D. 11:14 a.m.

Q10 Mathematics

56 tube lights were purchased for ₹56, and 20 tube lights broke in transit. The trader sold the remaining tube lights at ₹4.60 each. Find his profit.

A. ₹120.80

B. ₹109.60 ✓

C. ₹112.60

D. ₹112.50

Q11 Mathematics

The sum of two numbers is 80 and their L.C.M. is 558. What are the two numbers?

A. 11, 69

B. 23, 57

C. 16, 64

D. 18, 62 ✓

Q12 Mathematics

A sum of ₹2,500 is invested in a bank at 2% interest per annum compounded annually. On maturity, the amount payable becomes ₹2,601. Find the time period of the investment.

A. 1.5 years

B. 2.5 years

C. 2 years ✓

D. 1 year

Q13 Mathematics

A, B and C invest a sum in the ratio of 61 : 43 : 90, respectively. If they earned a total profit of ₹2,910 at the end of the year, then what is the difference between share of B and C?

A. ₹705 ✓

B. ₹807

C. ₹633

D. ₹753

Q14 Mathematics

The number of prime numbers lying between 476 and 485, both included, is:

A. 6

B. 2

C. 1 ✓

D. 4

Q15 Mathematics

A discount of 13% on the marked price of an article is allowed and then the article is sold for ₹348. The marked price of the article is:

A. ₹400 ✓

B. ₹380

C. ₹420

D. ₹392

Q16 Mathematics

Evaluate: $(-9) - (-60) \div (-10) + (-3) \times 8$

A. -38

B. -42

C. -39 ✓

D. -41

Q17 Mathematics

If 36% of first number is equal to four-sevenths of second number, what is the ratio of first number to the second number?

A. 95 : 60

B. 99 : 62

C. 104 : 61

D. 100 : 63 ✓

Q18 Mathematics

A shopkeeper is given a 10% trade discount and a 5% scheme discount (free units). On purchasing 100 units priced at ₹50 each, what is the trade discount amount?

A. ₹700

B. ₹1,000

C. ₹250

D. ₹500 ✓



Q19 Mathematics

The product of two consecutive natural numbers is 6. The greater of the two numbers is:

A. 3



B. 19

C. 2

D. 5

Q20 Mathematics

Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 4.5 years at 8% per annum rate of interest.

A. 124

B. 194

C. 144



D. 244

Q21 Mathematics

5 men can complete a piece of work in 18 days, while 9 women can do it in 5 days. In how many days can 3 women and 3 men complete this work?

A. 5 days

B. 7 days

C. 10 days



D. 8 days

Q24 Mathematics

$\sin^2 \alpha$ is:

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

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

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

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

**Q22 Mathematics**

What smallest number should be added to 57846 so that the sum is completely divisible by 58?

A. 43

B. 41

C. 38



D. 42

Q23 Mathematics

A spherical tank has a diameter of 10 metres. What is the volume of the spherical tank? (Use $\pi = 3.141$)

A. 523.5 cubic metre



B. 492.6 cubic metre

C. 423.5 cubic metre

D. 504.8 cubic metre



Q25 Mathematics

Simplify the following.

$$4\left(\left(\frac{3}{4}\right)x^2 - 26x + 17\right) - 3(x^2 + 4x - 14)$$

A. $116x - 10$

B. $116x + 110$

C. $-116x + 110$



D. $-116x - 110$

Q26 Mathematics

By how much is 65% of 65 greater than $\frac{4}{5}$ of 15?

A. 24.25

B. 28.25

C. 30.25



D. 27.25

Q27 Mathematics

A can lay railway track between two given stations in 16 days and B can do the same job in 11 days. With the help of C, they did the job in 3 days only. Then, C alone can do the job in

A. $5\frac{53}{95}$ days



B. $9\frac{53}{95}$ days

C. $13\frac{53}{95}$ days

D. $11\frac{53}{95}$ days

Q28 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 20^\circ$ and $\angle BAC = 131^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 122°



B. 111°

C. 113°

D. 128°



Q29 Mathematics

A cylindrical rod has an outer curved surface area of 1800 cm^2 . If the length of the rod is 52 cm, then the outer radius (in cm) of the rod, correct to two places of decimal, is:

Take $\pi = \frac{22}{7}$.

A. 5.51



B. 5.37

C. 6.69

D. 6.32

Q30 Mathematics

A trader claims to sell grains at a profit of 29%, but also dishonestly uses a weight which is 13% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 43%

B. 48%



C. 50%

D. 49%



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Find the value of $[290 \div \{17 + 7 \times (2 - 3)\}]$.

A. 29



B. 24

C. 26

D. 25

Q2 Mathematics

A shopkeeper bought an article for ₹576. At what price should he mark the article to earn a profit of 15% after allowing a discount of 4%?

A. ₹690



B. ₹639

C. ₹636

D. ₹685

Q3 Mathematics

In covering a distance of 52 km, Pranay takes 7 hours more than Aman. If Pranay doubles his speed, then he would take 6 hours less than Aman. Pranay's speed is:

A. 10 km/hr

B. 2 km/hr



C. 3 km/hr

D. 8 km/hr

Q4 Mathematics

Two pipes can fill a cistern, individually, in 70 min and 30 min, respectively. There is a pipe located at the bottom of the cistern to empty it. If all the three pipes are opened simultaneously, then the empty cistern gets filled in 28 min. How long will the pipe at the bottom of the tank take to empty the completely filled cistern if no other pipe is then open?

A. 81 min

B. 67 min

C. 80 min

D. 84 min



Q5 Mathematics

If 77% of first number is equal to three-fourths of second number, what is the ratio of first number to the second number?

A. 75 : 77



B. 72 : 73

C. 74 : 75

D. 73 : 82

Q6 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 7.5% per annum rate of interest deposited on 3 February 2024 and withdrawn on 4 April 2024.

A. ₹48

B. ₹50



C. ₹49

D. ₹51

Q7 Mathematics

The cost of 18 pens and 4 pencils is ₹200. If the cost of a pen decreases by ₹1 and the cost of a pencil increases by ₹3, then the cost of 19 pens and 3 pencils is ₹151. What is the original cost of 12 pens and 10 pencils?

A. ₹429

B. ₹430

C. ₹434



D. ₹433

Q8 Mathematics

5 years ago, the age of a father was 14 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 9



B. 10

C. 11

D. 14



Q9 Mathematics

A man goes to Lucknow from Kanpur at a speed of 36 km/hr and returns to Kanpur at speed of 45 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

A. 43

B. 39

C. 45

D. 40

**Q10 Mathematics**

A vendor claims to sell wheat at a loss of 65%, but he cheats by using weights that are 70% less than the stated weight. What is his actual profit percentage (round off to two decimal places)?

A. 16.67%



B. 12.93%

C. 11.35%

D. 19.59%

Q11 Mathematics

The LCM of the numbers 2.1 and 0.68 is:

A. 0.714

B. 7.14

C. 714

D. 71.4

**Q12 Mathematics**

M and N started a business. M invested ₹69,000 more than N for 5 months, while N invested for 3 months. M's share is ₹720 more than that of N, out of a total profit of ₹2,160. Find the capital contributed by M.

A. ₹4,14,000



B. ₹4,14,120

C. ₹4,14,100

D. ₹4,14,073

Q13 Mathematics

The HCF and the LCM of two numbers are 5 and 3190, respectively. If one of the numbers is 110, find the other one.

A. 155

B. 135

C. 145



D. 165

Q14 Mathematics

Sapna invested ₹20,700 on simple interest, partly at 9% per annum and partly at 14% per annum. If she earns equal interests from the two investments after 3 years, then find the sum invested at 9% per annum (in ₹).

A. 12,600



B. 12,599

C. 12,597

D. 12,602

Q15 Mathematics

If the 6-digit number N00M49 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M + N = 5$

B. $M = N$

C. $M - N = 1$

D. $M - N = -5$

**Q16 Mathematics**

P, Q and R invest a sum in the ratio of 3 : 53 : 24, respectively. If they earned a total profit of ₹1,280 at the end of the year, then what is the difference between share of Q and R?

A. ₹417

B. ₹570

C. ₹533

D. ₹464

**Q17 Mathematics**

The average of first 174 even numbers is

A. 175.5

B. 174.5

C. 175



D. 176

Q18 Mathematics

Which of the following numbers divides 889897?

A. 52

B. 69

C. 64

D. 59



Q19 Mathematics

The population of a district is 373000, out of which 227000 are males. 69% of the population is literate. If 69% males are literate, then what percentage of females are literate?

A. 69%



B. 70%

C. 67%

D. 68%

Q20 Mathematics

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 76 kg and 36 kg is:

A. 53.4

B. 52.4

C. 51.4



D. 50.4

Q21 Mathematics

A wholesaler offers a trade discount of 15% on a product priced at ₹8,000. The customer is also eligible for a scheme discount of 5% on the already discounted price. What is the final price the customer has to pay?

A. ₹6,460



B. ₹6,440

C. ₹6,800

D. ₹6,600

Q25 Mathematics

Pipe A can fill a tank in 13 hours, Pipe B in 27 hours, and Pipe C in 19 hours. What is the time (in hours) taken to fill the tank when all three pipes are opened together?

A. $6\frac{3}{1111}$



B. $5\frac{3}{1111}$

C. $4\frac{3}{1111}$

D. $7\frac{3}{1111}$

Q22 Mathematics

Evaluate: $(-9) - (-60) \div (-6) + (-4) \times 8$

A. -53

B. -50

C. -51



D. -54

Q23 Mathematics

Mohan bought some pens at the rate of ₹150/dozen. He sold them for ₹16 each. His profit percentage is ____%.

A. 28



B. 30

C. 32

D. 26

Q24 Mathematics

The volume of a cube is 1728 cm^3 . Find its total surface area (in cm^2).

A. 784

B. 764

C. 884

D. 864



Q26 Mathematics

The value of $\frac{(1 + \sin A)(\tan A - \sec A + 1)\sec A}{\tan A + \sec A - (\sec^2 A - \tan^2 A)}$ is:

A. 1



B. 0

C. $\sec A$

D. $\sin A$

Q27 Mathematics

By how much is 65% of 65 greater than $\frac{3}{5}$ of 15?

A. 30.25

B. 31.25

C. 27.25

D. 33.25



Q28 Mathematics

Simplify: $4\left(\left(\frac{7}{4}\right)x^2 - 27x + 19\right) - 7(x^2 + 9x - 14)$

A. $-171x - 174$

B. $171x + 174$

C. $171x - 174$

D. $-171x + 174$



Q29 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 40^\circ$ and $\angle BAC = 120^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 149°

B. 140°



C. 148°

D. 144°

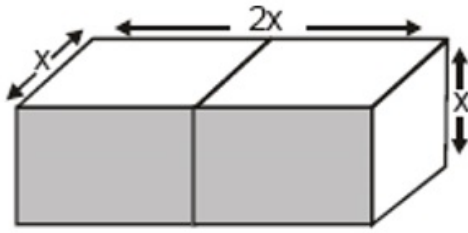


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Q30 Mathematics

Two cubes each of volume 125 cm^3 are joined end to end. The total surface area of the resulting cuboid is:



A. 80 cm^2

B. 160 cm^2

C. 250 cm^2



D. 125 cm^2



Mathematics

30 Questions • Answer Key

Q1 Mathematics

In an election between two candidates 92 % of the registered voters cast their vote and 20 % of the votes polled were found invalid. Winning candidate got 75 % of the valid votes and won the election by a margin of 322 votes. How many voters were registered?

A. 3123

B. 875

C. 877

D. 873

Q2 Mathematics

P, Q and R started a business investing amounts of ₹2,030, ₹1,700, and ₹1,010, respectively. If Q's share in the profit earned by them is ₹975. what is the difference in the profit (in ₹) earned by P and R?

A. ₹586

B. ₹583

C. ₹584

D. ₹585

Q3 Mathematics

I bought two frocks for ₹1,200. I sold the first one at a loss of 7% and the second at a gain of 23%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first frock.

A. 940

B. 944

C. 920

D. 904

Q4 Mathematics

The number of prime numbers lying between 389 and 403, both included, is:

A. 1

B. 3

C. 8

D. 6

Q5 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 6.75% per annum rate of interest deposited on 21 February 2024 and withdrawn on 22 April 2024.

A. ₹46

B. ₹45

C. ₹43

D. ₹44

Q6 Mathematics

A man driving a car at a speed of 79 km/hr crosses a bridge in 3.6 minutes. Find the length of the bridge.

A. 4.74 km

B. 4.88 km

C. 4.01 km

D. 4.21 km

Q7 Mathematics

₹28,000 were divided among A, B and C, such that 2 times the share of A = 9 times the share of B = 6 times the share of C. Find the share of A.

A. ₹18,195

B. ₹18,000

C. ₹17,845

D. ₹18,140

Q8 Mathematics

The H.C.F. and the L.C.M. of two numbers are 5 and 495, respectively. If one of the numbers is 55, find the other one.

A. 9

B. 8

C. 45

D. 64



Q9 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 40^\circ$. E is a point on BC such that $\angle CAE = 37^\circ$. What is the measure of $\angle AEB$?

- A. 83°
- B. 99°
- C. 78°
- D. 87°

**Q10 Mathematics**

If the third proportional of 32 and 24 is x, then what is the value of x?

- A. 18
- B. 20
- C. 16
- D. 17

**Q11 Mathematics**

The total surface area of a cube having side 40 cm is:

- A. 9564 cm²
- B. 9600 cm²
- C. 9632 cm²
- D. 9628 cm²

**Q12 Mathematics**

Sapna invested ₹21,900 on simple interest, partly at 14% per annum and partly at 10% per annum. If she earns equal interests from the two investments after 2 years, then find the sum invested at 14% per annum (in ₹).

- A. 9,128
- B. 9,123
- C. 9,124
- D. 9,125

**Q13 Mathematics**

The average price of three items of furniture is ₹5,310. If their prices are in the ratio 3 : 5 : 7, the price of the cheapest item (in ₹) is:

- A. 3,186
- B. 5,310
- C. 7,434
- D. 1,062

**Q14 Mathematics**

If 2 times the age of Ram is 25 years more than 9 times the age of Ramya, and 5 times the age of Ramya is 4 years less than the age of Ram, then what is the difference (in years) between the ages of Ram and Ramya?

- A. 74
- B. 75
- C. 72
- D. 77

**Q15 Mathematics**

Find the value of $57^{-8} \div 57^{17} \times 57^{-18}$.

- A. 57-46
- B. 57-36
- C. 57-43
- D. 57-45

**Q16 Mathematics**

Given that $7^{0.07} = x$, $7^{0.07} = y$ and $x^z = y^3$, then the value of z is close to:

- A. 5.42
- B. 1.23
- C. 3
- D. 3.41

**Q17 Mathematics**

An item marked for ₹38,800 is available on a discount of 25% or two successive discounts of 10% and 15%. What is the difference between the selling prices in the discount schemes?

- A. ₹825
- B. ₹800
- C. ₹582
- D. ₹628

**Q18 Mathematics**

Which of the following numbers divides 747579723?

- A. 13
- B. 9
- C. 8
- D. 11



Q19 Mathematics

The cost of 7 pens and 8 pencils is ₹230. If the cost of a pen decreases by ₹1 and the cost of a pencil increases by ₹7, then the cost of 14 pens and 4 pencils is ₹150. What is the original cost of 8 pens and 8 pencils?

A. ₹232



B. ₹229

C. ₹230

D. ₹228

Q20 Mathematics

The radius of a sphere is 16 cm. Find its surface area.

A. $1024\pi \text{ cm}^2$



B. $341\pi \text{ cm}^2$

C. $512\pi \text{ cm}^2$

D. $768\pi \text{ cm}^2$

Q21 Mathematics

The HCF of two numbers is 16 and their LCM is 240. If one number is 48, find the other number.

A. 80



B. 70

C. 64

D. 72

Q22 Mathematics

The average of first 167 even numbers is

A. 169

B. 168



C. 168.5

D. 167.5

Q23 Mathematics

A train overtakes two persons walking along a railway track. The first one walks at 9 km/hr. The other one walks at 12.6 km/hr. The train needs 13.5 and 15 seconds, respectively, to overtake them. What is the speed of the train if both the persons are walking in the same direction as the train?

A. 44 km/hr

B. 35 km/hr

C. 38 km/hr

D. 45 km/hr

**Q24 Mathematics**

A wholesaler gives a scheme discount of 10% on a marked price of ₹400. What is the selling price?

A. ₹380

B. ₹350

C. ₹370

D. ₹360

**Q25 Mathematics**

Simplify: $3\left(\left(\frac{5}{3}\right)x^2 - 28x + 15\right) - 5(x^2 + 6x - 15)$

A. $-114x + 120$



B. $114x - 120$

C. $114x + 120$

D. $-114x - 120$

Q26 Mathematics

By how much is 65% of 65 greater than $\frac{3}{5}$ of 55?

A. 6.25

B. 3.25

C. 7.25

D. 9.25



Q27 Mathematics

The selling price of 40 books is equal to the cost price of 28 books. Find the loss or gain percentage.

A. $\frac{100}{12}\%$ loss

B. $\frac{100}{12}\%$ gain

C. 30% loss



D. 30% gain

Q28 Mathematics

Hema can do a certain piece of work in 30 days. Hema and Raji can together do the same work in 22 days, and Hema, Raji and Smitha can do the same work together in 15 days. In how many days can Hema and Smitha do the same work together?

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

B. $\frac{62}{3}$

C. $\frac{51}{5}$

D. $\frac{55}{3}$

**Q29 Mathematics**

Find the value of $\frac{\cos^6 \theta + \sin^6 \theta + 3 \sin^2 \theta \cos^2 \theta}{\operatorname{cosec} \theta \sec \theta ((\sin \theta + \cos \theta)^2 - 1)}$.

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

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



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

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



Q30 Mathematics

A can lay railway track between two given stations in 22 days and B can do the same job in 10 days. With the help of C, they did the job in 2 days only. Then, C alone can do the job in

A. $8\frac{32}{39}$ days

B. $11\frac{32}{39}$ days

C. $12\frac{32}{39}$ days

D. $2\frac{32}{39}$ days



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Rishi travels 585 km at 65 km/hr, the next 368 km at 92 km/hr and the next 168 km at 56 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

- A. 70.72
- B. 72.97
- C. 71.81
- D. 70.06



Q2 Mathematics

Find the mean proportional of 400 and 4.

- A. 37
- B. 41
- C. 40
- D. 39



Q3 Mathematics

The population of a district is 350000, out of which 175000 are males. 36% of the population is literate. If 22% males are literate, then what percentage of females are literate?

- A. 53%
- B. 48%
- C. 47%
- D. 50%



Q4 Mathematics

The number of prime numbers lying between 430 and 443, both included, is:

- A. 4
- B. 3
- C. 5
- D. 2



Q5 Mathematics

M and N start a business. M invests ₹64,000 more than N for 2 months and N invests for 3 months. M's share is ₹552 more than that of N, out of a total profit of ₹1,656. Find the capital contributed by M.

- A. ₹95,828
- B. ₹96,000
- C. ₹95,898
- D. ₹95,804



Q6 Mathematics

A bus travelling at 84 km/hr completes a journey in 20 hours. What should its speed be to cover the same distance in 10 hours?

- A. 168 km/hr
- B. 165 km/hr
- C. 171 km/hr
- D. 167 km/hr



Q7 Mathematics

A retailer offers a discount scheme 'Buy 3 get 1 free'. Every item costs ₹3,000. He gave a discount of 20% on the total bill to his relative. If his relative takes home 4 items, then how much he would have paid?

- A. ₹6,200
- B. ₹7,000
- C. ₹7,200
- D. ₹5,400



Q8 Mathematics

The marks scored by 10 students are given below.
18, 10, 15, 18, 18, 13, 20, 18, 17, 19
The mode of the given data is:

- A. 18
- B. 13
- C. 15
- D. 10



Q9 Mathematics

A cuboid has dimensions 10 cm, 8 cm and 6 cm. If the largest possible cube is cut from one of the corners of the cuboid, what is the total surface area of the remaining portion?

A. 488 cm²

B. 376 cm² ✓

C. 160 cm²

D. 312 cm²

Q10 Mathematics

Two times the present age of P exceeds the present age of Q by 41 years. After 7 years, nine times Q's age will be 24 years less than six times P's age at that time. What is the present age (in years) of Q?

A. 22

B. 13 ✓

C. 20

D. 19

Q11 Mathematics

The number 889897 is divisible by which of the following?

A. 69

B. 52

C. 59 ✓

D. 64

Q12 Mathematics

X, Y and Z invested a sum in the ratio of 19 : 88 : 18, respectively. If they earned a total profit of ₹2,200 at the end of the year, what is the difference between the shares of Y and Z?

A. ₹1,232 ✓

B. ₹1,302

C. ₹1,391

D. ₹1,181

Q13 Mathematics

The sum of the squares of two consecutive even natural numbers is 164. The sum of the numbers is:

A. 8

B. 32

C. 16

D. 18 ✓

Q14 Mathematics

Find the simple interest on ₹4,000 at 7.5% per annum rate of interest deposited on 9 February 2024 and withdrawn on 10 April 2024.

A. ₹49

B. ₹48

C. ₹51

D. ₹50 ✓

Q15 Mathematics

The LCM of the numbers 14.2 and 0.05 is:

A. 1.42

B. 14.2 ✓

C. 142

D. 0.142

Q16 Mathematics

Sapna invested ₹20,300 on simple interest, partly at 11% per annum and partly at 3% per annum. If she earns equal interests from the two investments after 5 years, then find the sum invested at 11% per annum (in ₹).

A. 4,350 ✓

B. 4,352

C. 4,347

D. 4,351

Q17 Mathematics

The average weight of Tushar, Salil and Mukund is 45 kg. If the average weight of Tushar and Salil is 44 kg and that of Salil and Mukund is 47 kg, then the weight of Salil (in kg) is:

A. 57

B. 67

C. 62

D. 47 ✓

Q18 Mathematics

Evaluate: $(-9) - (-60) \div (-10) + (-3) \times 7$

A. -39

B. -38

C. -35

D. -36 ✓



Q19 Mathematics

Simplify $x(4x - 4) + 5(x^2 - 5) + 12$.

A. $9x^2 - 4x - 13$ ✓

B. $-9x^2 - 4x - 13$

C. $9x^2 - 4x + 13$

D. $-9x^2 - 4x + 13$

Q20 Mathematics

A shopkeeper lists the price of a fan at 44% above its cost price and offers a 25% discount on its list price. If he earns a profit of ₹126, then what is the list price (in ₹) of the fan?

A. 2,098

B. 2,268 ✓

C. 1,968

D. 2,192

Q21 Mathematics

The sides of a triangle are 14 cm, 48 cm, and 50 cm. What is its area? (in cm^2)

A. 324

B. 321

C. 314

D. 336 ✓

Q22 Mathematics

Which of the following numbers divides 44,43,48,269?

A. 12

B. 9

C. 10

D. 19 ✓

Q23 Mathematics

Under an offer at a shop selling trousers, customers were getting 4 trousers free on the purchase of 6 trousers. Find the discount available to the customer.

A. 20%

B. 40% ✓

C. 50%

D. 30%

Q24 Mathematics

A can do a work in 16 days and B can do the same work in 18 days. If they work on it together for 4 days, then what fraction of the work is left?

A. $\frac{25}{36}$

B. $\frac{29}{36}$

C. $\frac{19}{36}$ ✓

D. $\frac{17}{36}$



Q25 Mathematics

Simplify: $\frac{(\tan A - \cot B)}{(\tan B - \cot A)}$

- A. $\tan B \cot A$
- B. $\sin B \cos A$
- C. $\sin A \cos B$
- D. $\tan A \cot B$



Q26 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 36^\circ$ and $\angle BAC = 94^\circ$, then what is the measure of $\angle ACD$ (in degree)?

- A. 80°
- B. 163°
- C. 159°
- D. 186°



Q27 Mathematics

The value of $\sqrt{196} + \sqrt{0.0225} - \sqrt{5.76}$ is _____.

- A. 12.78
- B. 11.1
- C. 11.75
- D. 14.68



Q28 Mathematics

Hema can do a certain piece of work in 30 days. Hema and Raji can together do the same work in 25 days, and Hema, Raji and Smitha can do the same work together in 10 days. In how many days can Hema and Smitha do the same work together?

- A. $\frac{84}{7}$
- B. $\frac{75}{7}$
- C. $\frac{68}{9}$
- D. $\frac{71}{8}$



Q29 Mathematics

Pallavi bought a toy for ₹255, decorated it at a cost of ₹5 and sold the toy for ₹154. Find the loss or profit percentage.

A. $\frac{530}{13}\%$ loss



B. 530 % loss

C. $\frac{540}{13}\%$ profit

D. $\frac{530}{13}\%$ profit

Q30 Mathematics

By how much is 65% of 65 greater than $\frac{1}{5}$ of 25?

A. 31.25

B. 35.25

C. 34.25

D. 37.25



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Anshuman and Kunal together invested ₹36,400 in a business. At the end of the year, out of a total profit of ₹19,500, Kunal's share was ₹6,300. What was the difference between their investments?

- A. ₹14,879
- B. ₹14,688
- C. ₹12,892
- D. ₹12,880



Q2 Mathematics

Which of the following ratios is the greatest?

- A. 29 : 57
- B. 22 : 82
- C. 23 : 75
- D. 31 : 85



Q3 Mathematics

The number 576499 is divisible by which of the following?

- A. 7
- B. 6
- C. 15
- D. 16



Q4 Mathematics

A man riding on a bicycle at a speed of 36 km/hr crosses a bridge in 54 seconds. Find the length (in metres) of the bridge.

- A. 350
- B. 550
- C. 540
- D. 440



Q5 Mathematics

Find a single discount equivalent to successive discounts of 15% and 18%.

- A. 30.3%
- B. 34.3%
- C. 28.3%
- D. 32.3%



Q6 Mathematics

The sum of two numbers is 132 and their L.C.M. is 630. What are the two numbers?

- A. 83, 49
- B. 88, 44
- C. 95, 37
- D. 90, 42



Q7 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹6,258, and the rate of interest is 20% per annum compounded annually, then the sum is:

- A. ₹25,120
- B. ₹25,235
- C. ₹26,075
- D. ₹26,630



Q8 Mathematics

The average price of three items of furniture is ₹16875. If their prices are in the ratio 3:5:7, the price of the costliest item (in ₹) is

- A. 10125
- B. 23625
- C. 5625
- D. 7875



Q9 Mathematics

Wasim travels 455 km at 91 km/hr, the next 390 km at 78 km/hr and the next 476 km at 68 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

- A. 78.27
- B. 77.71
- C. 78.96
- D. 73.67



Q10 Mathematics

If 2 times a son's age is added to his father's age, the sum is 46 years. If 2.5 times the father's age is added to the son's age, the sum is 97 years. What is the father's age (in years)?

A. 35

B. 34

C. 37



D. 33

Q11 Mathematics

Find a single discount equivalent to successive discounts of 5% and 20%.

A. 26%

B. 22%

C. 24%



D. 28%

Q12 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 11 months.

A. ₹64

B. ₹528

C. ₹44



D. ₹88

Q13 Mathematics

I bought two toy guns for ₹1,200. I sold the first one at a loss of 8% and the second at a gain of 16%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first toy gun.

A. 820

B. 800



C. 824

D. 784

Q14 Mathematics

The product of two positive numbers is 1445. If the first number is five times of the second number, then the sum of the two numbers is:

A. 102



B. 105

C. 115

D. 93

Q15 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 71^\circ$. E is a point on BC such that $\angle CAE = 17^\circ$. What is the measure of $\angle AEB$?

A. 40° B. 31° C. 36° D. 34° **Q16 Mathematics**

The length, breadth and height of a cuboid are in the ratio of 5 : 4 : 3. If the sum of the length, breadth and height is 120 cm, then what will be its volume?

A. 45,000 cm³B. 50,000 cm³C. 60,000 cm³D. 40,000 cm³**Q17 Mathematics**

Given that $76^{0.44} = x$, $76^{0.93} = y$ and $x^z = y^3$, then the value of z is close to:

A. 5.18

B. 7.48

C. 7.73

D. 6.34

**Q18 Mathematics**

P, Q and R invested a sum in the ratio of 12 : 82 : 38, respectively. If they earned a total profit of ₹3,510 at the end of year, what is the difference between the shares of Q and R?

A. ₹1,092

B. ₹1,215

C. ₹1,170



D. ₹1,281

Q19 Mathematics

If the 6-digit number N09M82 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M = N$ B. $M + N = -4$ C. $M - N = 4$ D. $M - N = 1$ 

Q20 Mathematics

Find the value of: $93^{-6} \div 93^{16} \times 93^{-12}$

- A. 93^{-33}
- B. 93^{-26}
- C. 93^{-25}
- D. 93^{-34}

**Q21 Mathematics**

The income of Raman is ₹77,600. He saves 13% of his income. If his income increases by 50% and expenditure increases by 50%, then his savings will:

- A. decrease by ₹19,012
- B. increase by ₹19,015
- C. decrease by ₹6,406
- D. increase by ₹5,044

**Q22 Mathematics**

The LCM of the numbers 12.8 and 0.004 is:

- A. 0.128
- B. 128
- C. 1.28
- D. 12.8

**Q25 Mathematics**

A cuboid has length 10 cm, breadth 5 cm and height 2 cm. What is its surface area?

- A. 140 cm^2
- B. 180 cm^2
- C. 160 cm^2
- D. 130 cm^2

**Q26 Mathematics**

Find the value of x satisfying: $2(3x^2 - 7) - 3(2x^2 + 7x - 9) = 13$

- A. -3
- B. 4
- C. 0
- D. -1

**Q23 Mathematics**

The average price of three items of furniture is ₹5,305. If their prices are in the ratio 3 : 5 : 7, the price of the cheapest item (in ₹) is:

- A. 1,061
- B. 7,427
- C. 3,183
- D. 5,305

**Q24 Mathematics**

A vendor claims to sell wheat at a loss of 50%, but he cheats by using weights that are 65% less than the stated weight. What is his actual profit percentage (round off to two decimal places)?

- A. 46.81%
- B. 42.86%
- C. 47.33%
- D. 43.08%



Q27 Mathematics

By how much is 65% of 65 greater than $\frac{2}{5}$ of 15?

A. 33.25

B. 36.25 

C. 30.25

D. 34.25

Q28 Mathematics

Anjani can do a certain piece of work in 24 days. Anjani and Khushbu can together do the same work in 12 days, and Anjani, Khushbu and Sushmita can do the same work together in 9 days. In how many days can Anjani and Sushmita do the same work together?

A. $\frac{82}{6}$ B. $\frac{65}{5}$ C. $\frac{70}{7}$ D. $\frac{72}{5}$ 

Q29 Mathematics

If $\cot A = \sqrt{5}$, then find the value of $\frac{\operatorname{cosec}^2 A - \sec^2 A}{\operatorname{cosec}^2 A + \sec^2 A}$.

A. $\frac{\sqrt{5} + 1}{\sqrt{5} - 1}$ B. $\frac{2}{3}$ C. $\frac{\sqrt{5} - 1}{\sqrt{5} + 1}$ D. $\frac{3}{2}$ 

Q30 Mathematics

A can lay railway track between two given stations in 21 days and B can do the same job in 16 days. With the help of C, they did the job in 2 days only. Then, C alone can do the job in

A. $4\frac{74}{131}$ days

B. $12\frac{74}{131}$ days

C. $6\frac{74}{131}$ days

D. $2\frac{74}{131}$ days



Mathematics

30 Questions • Answer Key

Q1 Mathematics

If the third proportional of 25 and 35 be x , then what is the value of x ?

A. 49



B. 52

C. 51

D. 50

Q2 Mathematics

The average weight of Mandar, Ketan and Tushar is 45 kg. If the average weight of Mandar and Ketan is 44 kg and that of Ketan and Tushar is 45 kg, then the weight of Ketan (in kg) is:

A. 53

B. 58

C. 63

D. 43



Q3 Mathematics

The sides of a triangle are 44 cm, 33 cm, and 55 cm. What is its area? (in cm^2)

A. 732

B. 726



C. 742

D. 749

Q4 Mathematics

A company earns a profit (in ₹) that is distributed among the company's three partners in the ratio of 14 : 10 : 16. If the difference between the smallest and the largest shares is ₹29,547, the total profit (in ₹) of the company is:

A. 1,97,067

B. 1,96,943

C. 1,96,892

D. 1,96,980



Q5 Mathematics

If the 6-digit number $N84M69$ is divisible by 11, then which of the options below can give a possible correct relation between M and N ?

A. $M - N = -7$ B. $M + N = 7$ C. $M - N = 1$ D. $M = N$

Q6 Mathematics

M and N started a business. M invested ₹48,000 more than N for 3 months, while N invested for 4 months. M 's share is ₹498 more than that of N , out of a total profit of ₹1,494. Find the capital contributed by M .

A. ₹78,000

B. ₹75,000

C. ₹76,800



D. ₹78,600

Q7 Mathematics

The number of prime numbers lying between 306 and 313, both included, is:

A. 3



B. 2

C. 4

D. 5

Q8 Mathematics

A jacket is marked at ₹12,000. Store A offers two successive discounts of 15% and 10%. Store B offers two successive discounts of 10% and 15%. A customer wants to know which store provides a better deal and by how much?

A. Store B; by ₹100

B. Both stores A and B offer the same price



C. Store A; by ₹100

D. Store A; by ₹150



Q9 Mathematics

If 3 times Mary's present age is 18 years more than 5 times Diya's present age, and 2 times Diya's present age is 3 years less than Mary's present age, then what is the difference (in years) between the ages of Mary and Diya?

A. 15

B. 16

C. 11

D. 12

**Q10 Mathematics**

A man driving a car at a speed of 41 km/hr crosses a bridge in 2.4 minutes. Find the length of the bridge.

A. 0.69 km

B. 1.64 km



C. 2.54 km

D. 2.18 km

Q11 Mathematics

Find the value of $[868 \div \{26 + 6 \times (3 - 7)\}]$.

A. 434



B. 431

C. 435

D. 432

Q12 Mathematics

Which of the following is the greatest number that, when dividing 183, 127 and 211, leaves the same remainder each time?

A. 25

B. 30

C. 28



D. 32

Q13 Mathematics

A train that is 220 m long overtakes a man moving at a speed of 10 km/hr (in same direction) in 44 seconds. How much time (in seconds) will it take this train to completely cross another train of a length of 315 m, moving in the opposite direction at a speed of 79 km/hr?

A. 32

B. 28

C. 18



D. 14

Q14 Mathematics

The marks scored by 10 students are given below.

18, 13, 14, 14, 19, 14, 17, 17, 14, 20

The mode of the data is:

A. 18

B. 14



C. 13

D. 19

Q15 Mathematics

The product of two consecutive natural numbers is 182. The greater of the two numbers is:

A. 14



B. 7

C. 26

D. 27

Q16 Mathematics

After allowing a discount of 28%, an article is available for ₹3,240. Its marked price is _____.

A. ₹4,500



B. ₹4,332

C. ₹4,147

D. ₹4,450

Q17 Mathematics

Find the value of: $55^{-13} \div 55^{14} \times 55^{-11}$

A. 55-38



B. 55-32

C. 55-36

D. 55-48

Q18 Mathematics

4 men can complete a piece of work in 18 days, while 9 women can do it in 8 days. In how many days can 3 women and 6 men complete this work?

A. 11 days

B. 4 days

C. 13 days

D. 8 days



Q19 Mathematics

A number, when increased by 60%, gives 3570. The number is:

- A. 6693.75
- B. 2231.25
- C. 4462.5
- D. 1115.625

**Q20 Mathematics**

Which of the following numbers divides 3,27,087?

- A. 8
- B. 3
- C. 12
- D. 5

**Q21 Mathematics**

Sapna invested ₹21,700 on simple interest, partly at 3% per annum and partly at 12% per annum. If she earns equal interests from the two investments after 7 years, then find the sum invested at 3% per annum (in ₹).

- A. 17,360
- B. 17,357
- C. 17,358
- D. 17,361

**Q24 Mathematics**

Simplify: $\frac{\sin A \tan A}{(1 - \cos A)}$

- A. $1 + \operatorname{cosec} A$
- B. $1 + \cos A$
- C. $1 + \sec A$
- D. $1 + \sin A$

**Q25 Mathematics**

Find the value of x satisfying: $5(5x^2 - 6) - 5(5x^2 + 2x - 4) = 20$

- A. 2
- B. -1
- C. -3
- D. 1

**Q22 Mathematics**

Mahesh bought some sharpeners at the rate of ₹150 a dozen. He sold them for ₹41 each. His profit percentage is ____%.

- A. 232
- B. 226
- C. 228
- D. 230

**Q23 Mathematics**

A man makes a monthly payment equal to 30% of his monthly salary towards debt repayment. He spends 20% of the remaining salary and saves ₹602. His monthly salary (in ₹) is:

- A. 1,115
- B. 1,075
- C. 1,078
- D. 1,072



Q26 Mathematics

Pipe A can fill a tank in 12 hours, pipe B can fill the same tank in 22 hours and pipe C can fill the same tank in 8 hours. The time taken by them to fill the same tank if they operate together is::

A. $2\frac{63}{67}$ hours

B. $3\frac{63}{67}$ hours ✓

C. $5\frac{63}{67}$ hours

D. $4\frac{63}{67}$ hours

Q27 Mathematics

By selling an article at $\frac{6}{15}$ of its actual selling price, Nirbhay incurs a loss of 14%.

If he sells it at 54% of its actual selling price, then the profit percentage is:

A. 16.1% ✓

B. 18.7%

C. 16.5%

D. 18.4%

Q28 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 74^\circ$ and $\angle BAC = 54^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 85°

B. 91°

C. 76° ✓

D. 82°

Q29 Mathematics

The perimeter of an equilateral triangle ABC is 22.2 cm. What is the area of triangle (in cm^2)?

A. $11.36\sqrt{3}$

B. $14.93\sqrt{3}$

C. $12.76\sqrt{3}$

D. $13.69\sqrt{3}$ ✓



Q30 Mathematics

A sum of ₹15,625 amounts to ₹24,389 in 3 years at a certain rate of interest per annum, compounded annually. The rate of interest per annum is:

A. 14%

B. 15%

C. 19%

D. 16%



Mathematics

30 Questions • Answer Key

Q1 Mathematics

If the third proportional of 4 and 22 be x , then what is the value of x ?

A. 121



B. 122

C. 123

D. 119

Q2 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹5,214, and the rate of interest is 10% per annum compounded annually, then the sum is:

A. ₹46,650

B. ₹47,755

C. ₹47,320

D. ₹47,400



Q3 Mathematics

The average runs scored by a batsman in 23 matches is 42. In the next 10 matches, the batsman scored an average of 14 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

A. 35.52

B. 32.52

C. 34.52

D. 33.52



Q4 Mathematics

The income of Raman is ₹60,500. He saves 26% of his income. If his income increases by 17% and expenditure increases by 50%, then his savings will:

A. increase by ₹12,099

B. decrease by ₹12,095

C. increase by ₹12,098

D. decrease by ₹12,100



Q5 Mathematics

Which of the following numbers is divisible by 22?

A. 6136901

B. 6580350

C. 8132950

D. 7467614



Q6 Mathematics

The product of two positive numbers is 10125. If the first number is five times the second number, then the sum of the two numbers is:

A. 265

B. 270



C. 286

D. 264

Q7 Mathematics

The sum of two numbers is 52 and their LCM is 627. The two numbers are:

A. 17, 35

B. 12, 40

C. 19, 33



D. 24, 28

Q8 Mathematics

Mr. Sharma, Mr. Gupta and Ms. Sinha invested ₹4,000, ₹8,000 and ₹6,000, respectively, in a business. Mr. Sharma left the business after 6 months. If after 8 months, there was a gain of ₹34,000, then what will be the share of Mr. Gupta?

A. ₹20,000

B. ₹12,000

C. ₹16,000



D. ₹14,000



Q9 Mathematics

The HCF and LCM of two numbers are 11 and 792, respectively. If one number is 88, then find the other number.

A. 93

B. 97

C. 89

D. 99

**Q10 Mathematics**

Five solid cubes, each of volume 3375 cm^3 , are joined end to end to form a cuboid. What is the lateral surface area (in cm^2) of the cuboid?

A. 2694

B. 2700



C. 2409

D. 2801

Q11 Mathematics

A mobile phone is marked at ₹20,000. During a festive sale, a store offers two successive discounts — 15% first and then 10%. What is the final selling price of the mobile?

A. ₹15,500

B. ₹15,300



C. ₹16,000

D. ₹15,000

Q12 Mathematics

The sum of five numbers is 655. The average of the first two numbers is 80 and the third number is 102. Find the average of the remaining two numbers.

A. 196.5



B. 183

C. 197.5

D. 182

Q13 Mathematics

In covering a distance of 156 km, Abhay takes 5 hours more than Sameer. If Abhay doubles his speed, then he would take 8 hours less than Sameer. Abhay's speed is:

A. 1 km/hr

B. 7 km/hr

C. 6 km/hr



D. 16 km/hr

Q14 Mathematics

A man driving a car at a speed of 67 km/hr crosses a bridge in 3 minutes. Find the length of the bridge.

A. 2.51 km

B. 2.46 km

C. 3.35 km



D. 2.84 km

Q15 Mathematics

If 2 times the age of Ram is 14 years more than 6 times the age of Ramya, and 4 times the age of Ramya is 4 years less than the age of Ram, then what is the difference (in years) between the ages of Ram and Ramya?

A. 14

B. 17

C. 13



D. 15

Q16 Mathematics

If the 6-digit number N01M22 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M = N$

B. $M + N = -1$

C. $M - N = 1$



D. $M - N = 5$

Q17 Mathematics

Kushal and Brijesh together invested ₹63,300 in a business. At the end of the year, out of a total profit of ₹17,600, Brijesh's share was ₹2,200. What was the difference between their investments?

A. ₹47,475



B. ₹45,979

C. ₹46,154

D. ₹48,876

Q18 Mathematics

A number, when decreased by 7%, gives 3720. The number is:

A. 2000

B. 8000

C. 4000



D. 12000



Q19 Mathematics

If the difference between an interior angle and exterior angle of a regular polygon is 140° , then the number of sides of the polygon is equal to:

A. 18



B. 12

C. 14

D. 16

Q20 Mathematics

A company offers three schemes of successive discounts.

First: 25%, 10%

Second: 20 %, 15%

Third: 30%, 5%

Which scheme is best for the company?

A. First scheme

B. All the schemes are same

C. Third scheme

D. Second scheme

**Q21 Mathematics**

Evaluate: $(-9) - (-60) \div (-10) + (-2) \times 6$

A. -29

B. -27



C. -30

D. -26

Q22 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 1 month.

A. ₹48



B. ₹8

C. ₹4

D. ₹24

Q23 Mathematics

Find the surface area (rounded off to the nearest integer) of a sphere of radius 6.5 cm. (Take $\pi = 22/7$)

A. 534 cm²

B. 540 cm²

C. 531 cm²



D. 530 cm²

Q24 Mathematics

The value of $\sqrt{121} + \sqrt{0.0121} - \sqrt{7.84}$ is ____.

A. 3.9

B. 7.73

C. 8.31



D. 10.34



Q25 Mathematics

Anjali can do a certain piece of work in 21 days. Anjali and Ayushi can together do the same work in 12 days, and Anjali, Ayushi and Ankita can do the same work together in 8 days. In how many days can Anjali and Ankita do the same work?

A. $\frac{56}{5}$



B. $\frac{57}{7}$

C. $\frac{47}{6}$

D. $\frac{48}{5}$

Q26 Mathematics

If $M = \sqrt{\frac{1 + \cos A}{1 - \cos A}} - \operatorname{cosec} A - \cot A$, and A is an acute angle, then value of M is

A. 2

B. 1

C. 0



D. -1

Q27 Mathematics

Simplify: $3 \left(\left(\frac{7}{3} \right) x^2 - 22x + 19 \right) - 7(x^2 + 9x - 14)$

A. $-129x + 155$



B. $129x + 155$

C. $129x - 155$

D. $-129x - 155$

Q28 Mathematics

Manisha bought a toy for ₹940, decorated it at a cost of ₹10 and sold the toy for ₹659. Find the loss or profit percentage.

A. $\frac{592}{19} \% \text{ profit}$

B. $\frac{582}{19} \% \text{ profit}$

C. $582 \% \text{ loss}$

D. $\frac{582}{19} \% \text{ loss}$



Q29 Mathematics

Pipe A can fill a tank in 13 hours, pipe B can fill the same tank in 29 hours and pipe C can fill the same tank in 10 hours. The time taken by them to fill the same tank if they operate together is::

A. $3\frac{582}{797}$ hours

B. $10\frac{582}{797}$ hours

C. $11\frac{582}{797}$ hours

D. $4\frac{582}{797}$ hours

**Q30** Mathematics

A trader claims to sell pulses at a profit of 3%, but also dishonestly uses a weight which is 15% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 20%

B. 26%

C. 21%

D. 16%



Mathematics

30 Questions • Answer Key

Q1 Mathematics

The average runs scored by a batsman in 23 matches is 40. In the next 10 matches, the batsman scored an average of 14 runs. Find his average runs scored (rounded off to two decimal places) in all 33 matches.

- A. 33.12
- B. 31.12
- C. 32.12
- D. 34.12



Q2 Mathematics

If the measure of each interior angle of a regular polygon is 140° , then the number of its diagonals will be:

- A. 16
- B. 25
- C. 20
- D. 27



Q3 Mathematics

If the marked price of a book is ₹900, then find the selling price of the book after getting discount of 13%.

- A. ₹789
- B. ₹891
- C. ₹783
- D. ₹889



Q4 Mathematics

2 men can complete a piece of work in 18 days, while 4 women can do it in 6 days. In how many days can 6 women and 9 men complete this work?

- A. 4 days
- B. 3 days
- C. 1 day
- D. 2 days



Q5 Mathematics

Anaya has to reach Hyderabad which is 574 km away in 18 hours. His starting speed for 11 hours was 36 km/hr. For the next 136 km his speed was 34 km/hr. By what speed he must travel now so as to reach Hyderabad in the decided time of 18 hours?

- A. 8 km/hr
- B. 20 km/hr
- C. 9 km/hr
- D. 14 km/hr



Q6 Mathematics

The cost of 19 pens and 13 pencils is ₹254. If the cost of a pen decreases by ₹6 and the cost of a pencil increases by ₹9, then the cost of 14 pens and 2 pencils is ₹106. What is the original cost of 12 pens and 15 pencils?

- A. ₹174
- B. ₹171
- C. ₹175
- D. ₹173



Q7 Mathematics

The average of three numbers is 20. If two of them are 18 and 28, the third number is:

- A. 13
- B. 14
- C. 16
- D. 15



Q8 Mathematics

If 2 times Mary's present age is 20 years more than 6 times Diya's present age, and 5 times Diya's present age is 6 years less than Mary's present age, then what is the difference (in years) between the ages of Mary and Diya?

- A. 16
- B. 18
- C. 15
- D. 14



Q9 Mathematics

A shopkeeper offers a scheme discount of 20% and an additional 5% discount if payment is made in cash. What is the total discount percentage on ₹1,000?

A. 24%



B. 26%

C. 25%

D. 23%

Q10 Mathematics

If the 6-digit number N73M10 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M + N = 3$

B. $M - N = 1$

C. $M - N = -3$



D. $M = N$

Q11 Mathematics

Ritik and Sanjay together invested ₹77,600 in a business. At the end of the year, out of a total profit of ₹19,000, Sanjay's share was ₹7,600. What was the difference between their investments?

A. ₹14,343

B. ₹15,520



C. ₹15,928

D. ₹16,401

Q12 Mathematics

A number when increased by 100% gives 2730. The number is:

A. 682.5

B. 2730

C. 4095

D. 1365

**Q13 Mathematics**

Find the mean proportional between 18 and 32.

A. 26

B. 21

C. 23

D. 24

**Q14 Mathematics**

Ritesh and Gauri have to travel from Delhi to Kanpur in their respective cars. Ritesh is driving at 150 km/hr while Gauri is driving at 60 km/hr. Find the time taken by Gauri to reach Kanpur if Ritesh takes 8 hours.

A. 20 hours



B. 30 hours

C. 14 hours

D. 17 hours

Q15 Mathematics

The HCF and the LCM of two numbers are 24 and 288, respectively. If one of the numbers is 72, find the other one.

A. 10

B. 170

C. 20

D. 96

**Q16 Mathematics**

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 2 months.

A. ₹96



B. ₹8

C. ₹16

D. ₹28

Q17 Mathematics

If the length, breadth and height of a room are 10.5 m, 8.5 m and 11 m, respectively, then what is the area (in m^2) of the four walls of the room?

A. 412

B. 416

C. 414

D. 418



Q18 Mathematics

In an election between two candidates, 96% of the registered voters cast their vote and 15% of the votes polled were found invalid. The winning candidate got 80% of the valid votes and won the election by a margin of 1224 votes. How many voters were registered?

A. 2502

B. 2503

C. 2501

D. 2500

**Q19 Mathematics**

Which of the following numbers is divisible by 24?

A. 68,30,908

B. 71,32,968



C. 79,91,987

D. 73,40,390

Q20 Mathematics

The LCM of $2^3 \times 7^2 \times 12$, $2^2 \times 12^2 \times 18$ and $7^3 \times 12^2 \times 18^2$ is:

A. $27 \times 36 \times 73$ B. $27 \times 36 \times 72$ C. $27 \times 36 \times 74$ D. $27 \times 35 \times 73$ **Q21 Mathematics**

An amount of ₹638 is divided among three persons in the ratio of 2 : 5 : 4. The difference between the largest and the smallest shares (in ₹) in the distribution is:

A. 76

B. 110

C. 174



D. 157

Q22 Mathematics

If

$$x = a \operatorname{cosec} A \sin B,$$

$$y = b \operatorname{cosec} A \cos B, \text{ and}$$

$$z = c \cot A,$$

then, what is the value of $\frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2}$?

A. -1

B. 1



C. 0

D. -2

Q23 Mathematics

Pallavi bought a toy for ₹322, decorated it at a cost of ₹6 and sold the toy for ₹398. Find the loss or profit percentage.

A. $\frac{875}{41}\%$ lossB. $\frac{875}{41}\%$ profitC. $\frac{885}{41}\%$ loss

D. 875% profit



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Q24 Mathematics

A cylindrical rod has an outer curved surface area of 1100 cm^2 . If the length of the rod is 29 cm, then the outer radius (in cm) of the rod, correct to two places of decimal, is:

(Take $\pi = \frac{22}{7}$)

A. 8.17

B. 6.03



C. 5.53

D. 4.72

Q25 Mathematics

The simple interest on a certain sum for $7\frac{1}{3}$ years at the rate of 4.5% per annum is ₹6,270.

What will be the amount payable on the same sum at the rate of 8.6% per annum simple interest in $11\frac{1}{2}$ years?

A. ₹37,783

B. ₹37,794

C. ₹37,791



D. ₹37,784

Q26 Mathematics

The value of $6^2 + \sqrt{3^2} - 7\sqrt{81} - 16$ is

A. -32

B. -50

C. -37

D. -40

**Q27 Mathematics**

Simplify $13 \times (3 \times 4^2) \div 9 + 59 - 75$

A. $\frac{160}{3}$



B. $\frac{160}{9}$

C. $\frac{157}{9}$

D. $\frac{157}{3}$



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Q28 Mathematics

A trader claims to sell vegetables at a profit of 52%, but also dishonestly uses a weight which is 8% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 65%



B. 63%

C. 69%

D. 61%

Q29 Mathematics

Simplify: $3\left(\left(\frac{7}{3}\right)x^2 - 26x + 13\right) - 7(x^2 + 9x - 11)$

A. $141x - 116$

B. $141x + 116$

C. $-141x - 116$

D. $-141x + 116$

**Q30 Mathematics**

Pipe A can fill a tank in 16 hours, pipe B can fill the same tank in 26 hours and pipe C can fill the same tank in 16 hours. The time taken by them to fill the same tank if they operate together is::

A. $6\frac{2}{17}$ hours



B. $3\frac{2}{17}$ hours

C. $2\frac{2}{17}$ hours

D. $9\frac{2}{17}$ hours



Mathematics

30 Questions • Answer Key

Q1 Mathematics

A shopkeeper lists the price of a fan at 50% above its cost price and offers a 30% discount on its list price. If he earns a profit of ₹175, then what is the list price (in ₹) of the fan?

- A. 5,040
- B. 5,088
- C. 5,250
- D. 5,021



Q2 Mathematics

What sum of money (in ₹) will amount to ₹2,400 at 5% per annum simple interest in 4 years?

- A. ₹12,000
- B. ₹2,050
- C. ₹1,950
- D. ₹2,000



Q3 Mathematics

Which of the following numbers divides 934725?

- A. 6
- B. 3
- C. 10
- D. 2



Q4 Mathematics

Anil bought some pens at the rate of ₹150 a dozen. He sold them for ₹45 each. His profit percentage is ____%.

- A. 264
- B. 260
- C. 258
- D. 262



Q5 Mathematics

Find the value of $83^{-2} \div 83^7 \times 83^{-10}$.

- A. 83^{-19}
- B. 83^{-14}
- C. 83^{-16}
- D. 83^{-20}



Q6 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 7.5% per annum rate of interest deposited on 5 February 2024 and withdrawn on 6 April 2024.

- A. 48
- B. 50
- C. 51
- D. 49



Q7 Mathematics

What smallest number should be added to 71079 so that the sum is completely divisible by 23?

- A. 15
- B. 13
- C. 14
- D. 9



Q8 Mathematics

4 times the present age of P exceeds the present age of Q by 19 years. After 5 years, 3 times the age of Q will be 27 years less than 9 the age of P. The present age of Q is (in years):

- A. 63
- B. 66
- C. 58
- D. 61



Q9 Mathematics

An article is marked for ₹720. If two successive discounts of 10% and 15% are allowed for sale, then the selling price of the article is:

- A. ₹468
- B. ₹550.80
- C. ₹597.60
- D. ₹489.60



Q10 Mathematics

Diya has to reach Surat which is 811 km away in 14 hours. His starting speed for 5 hours was 91 km/hr. For the next 84 km his speed was 84 km/hr. By what speed he must travel now so as to reach Surat in the decided time of 14 hours?

A. 34 km/hr



B. 39 km/hr

C. 35 km/hr

D. 38 km/hr

Q11 Mathematics

Arjun and Malaika have to travel from Delhi to Kanpur in their respective cars. Arjun is driving at 66 km/hr while Malaika is driving at 99 km/hr. Find the time taken by Malaika to reach Kanpur if Arjun takes 3 hours.

A. 2 hours



B. 4 hours

C. 11 hours

D. 12 hours

Q12 Mathematics

Find the mean proportional between 22 and 88.

A. 46

B. 44



C. 47

D. 41

Q13 Mathematics

M and N start a business. M invests ₹24,000 more than N for 3 months and N invests for 4 months. M's share is ₹962 more than that of N, out of a total profit of ₹7,696. Find the capital contributed by M.

A. ₹57,424

B. ₹57,626

C. ₹57,600



D. ₹57,692

Q14 Mathematics

An electronics retailer offers two successive discounts of 7% and 10% on a TV priced at ₹48,000. What is the difference in the final price after applying two successive discounts compared to applying a flat discount of 17%?

A. ₹336



B. ₹312

C. ₹327

D. ₹318

Q15 Mathematics

The average of first 165 even numbers is

A. 166



B. 165.5

C. 166.5

D. 167

Q16 Mathematics

Simplify $x(7x - 2) + 5(x^2 - 3) + 13$.

A. $-12x^2 - 2x + 2$ B. $-12x^2 - 2x - 2$ C. $12x^2 - 2x + 2$ D. $12x^2 - 2x - 2$ **Q17 Mathematics**

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 60^\circ$. E is a point on BC such that $\angle CAE = 20^\circ$. What is the measure of $\angle AEB$?

A. 58° B. 46° C. 54° D. 50° **Q18 Mathematics**

The number of prime numbers lying between 488 and 494, both included, is:

A. 3

B. 4

C. 2

D. 1



Q19 Mathematics

The product of two consecutive positive natural numbers is 930. The greater of the two numbers is:

A. 31



B. 32

C. 33

D. 29

Q20 Mathematics

A number, when increased by 60%, gives 3600. The number is:

A. 2250



B. 6750

C. 4500

D. 1125

Q21 Mathematics

The average price of three items of furniture is ₹16,005. If their prices are in the ratio 3 : 5 : 7, the price of the cheapest item (in ₹) is:

A. 7,469

B. 9,603



C. 5,335

D. 3,201

Q22 Mathematics

P, Q and R invest a sum in the ratio of 59 : 14 : 72, respectively. If they earned a total profit of ₹4,790 at the end of the year, what is the difference between the shares of Q and R?

A. ₹1,966

B. ₹1,836

C. ₹1,916



D. ₹2,022

Q26 Mathematics

Simplify: $(1 + \cot^2 A) + \left(1 + \frac{1}{\cot^2 A}\right)$

A. $\tan^2 A$

B. $\operatorname{cosec}^2 A \sec^2 A$



C. $\cot^2 A$

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

Q23 Mathematics

The H.C.F. and the L.C.M. of two numbers are 11 and 495, respectively. If one of the numbers is 55, find the other one.

A. 21

B. 172

C. 99



D. 181

Q24 Mathematics

Find the surface area of a sphere whose diameter is equal to 54 cm.

A. $3651\pi \text{ cm}^2$

B. $3865\pi \text{ cm}^2$

C. $2386\pi \text{ cm}^2$

D. $2916\pi \text{ cm}^2$

**Q25 Mathematics**

The income of Raman is ₹86,400. He saves 22.5% of his income. If his income increases by 22% and expenditure increases by 25%, then his savings will:

A. increase by ₹2,273

B. increase by ₹2,268



C. decrease by ₹2,263

D. decrease by ₹2,271



Q27 Mathematics

Anjani can do a certain piece of work in 30 days. Anjani and Khushbu can together do the same work in 10 days, and Anjani, Khushbu and Sushmita can do the same work together in 9 days. In how many days can Anjani and Sushmita do the same work together?

A. $\frac{49}{4}$

B. $\frac{44}{2}$

C. $\frac{38}{3}$

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

**Q28 Mathematics**

The value of $\sqrt{121} + \sqrt{0.0196} - \sqrt{8.41}$ is ____.

A. 8.24

B. 8.55

C. 15.54

D. 6.03

**Q29 Mathematics**

Find the perimeter of a semicircle with a radius of 7 cm. (Use $\pi = \frac{22}{7}$)

A. 25 cm

B. 36 cm

C. 28 cm

D. 22 cm

**Q30 Mathematics**

Pipe A can fill a tank in 19 hours, pipe B can fill the same tank in 21 hours and pipe C can fill the same tank in 8 hours. The time taken by them to fill the same tank if they operate together is::

A. $10\frac{316}{719}$ hours

B. $13\frac{316}{719}$ hours

C. $11\frac{316}{719}$ hours

D. $4\frac{316}{719}$ hours



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Find the value of $[960 \div \{28 + 5 \times (7 - 3)\}]$.

A. 20



B. 23

C. 29

D. 15

Q2 Mathematics

The marks scored by 10 students are given below.

11, 11, 14, 12, 20, 19, 16, 18, 11, 12

The mode of the data is:

A. 10

B. 14

C. 11



D. 12

Q3 Mathematics

If the sum of all interior angles of a regular polygon is 28 right angles, then its number of sides is:

A. 13

B. 14

C. 15

D. 16



Q4 Mathematics

The LCM of the numbers 8.6 and 0.12 is:

A. 25.8



B. 2.58

C. 0.258

D. 258

Q5 Mathematics

A sum of money triples itself at a certain rate of compound interest in 16 years. In how many years will it amount to 9 times of itself?

A. 27 years

B. 32 years



C. 26 years

D. 29 years

Q6 Mathematics

Five solid cubes, each of volume 216000 cm^3 , are joined end to end to form a cuboid. What is the lateral surface area (in cm^2) of the cuboid?

A. 43245

B. 43464

C. 43045

D. 43200



Q7 Mathematics

A company earns a profit (in ₹) that is distributed among the company's three partners in the ratio of 12 : 3 : 14. If the difference between the smallest and the largest shares is ₹61,699, the total profit (in ₹) of the company is:

A. 1,62,673

B. 1,62,566

C. 1,62,661



D. 1,62,581

Q8 Mathematics

The diameter of a sphere is 12 cm. Find its volume.

A. $144\pi \text{ cm}^3$ B. $576\pi \text{ cm}^3$ C. $288\pi \text{ cm}^3$ D. $192\pi \text{ cm}^3$ 

Q9 Mathematics

Sapna invested ₹20,000 on simple interest, partly at 12% per annum and partly at 13% per annum. If she earns equal interests from the two investments after 7 years, then find the sum invested at 12% per annum (in ₹).

A. 10,398

B. 10,403

C. 10,399

D. 10,400

**Q10 Mathematics**

A man makes a monthly payment equal to 25% of his monthly salary towards debt repayment. He spends 52% of the remaining salary and saves ₹288. His monthly salary (in ₹) is:

A. 811

B. 816

C. 800



D. 888

Q11 Mathematics

₹21,300 were divided among A, B and C, such that 2 times the share of A = 4 times the share of B = 7 times the share of C. Find the share of A.

A. ₹11,868

B. ₹11,919

C. ₹11,928



D. ₹12,099

Q12 Mathematics

The sum of two numbers is 66 and their L.C.M. is 400. What are the two numbers?

A. 14, 52

B. 16, 50



C. 21, 45

D. 9, 57

Q13 Mathematics

A train that has a length of 150 m overtakes a man moving at a speed of 9 km/hr (in the same direction) in 36 seconds. How much time (in seconds) will it take this train to completely cross another train that is 185 m long, moving in the opposite direction at a speed of 43 km/hr?

A. 23

B. 12

C. 18



D. 35

Q14 Mathematics

The average of first 164 even numbers is

A. 165.5

B. 164.5

C. 165



D. 166

Q15 Mathematics

If 51% of first number is equal to six-sevenths of second number, what is the ratio of first number to the second number?

A. 199 : 124

B. 205 : 116

C. 200 : 119



D. 195 : 114

Q16 Mathematics

A chair was sold for ₹4,600 after giving two successive discounts of 12% and 9%. What is the marked price? (Rounded up to two decimal places.)

A. ₹5,744.26



B. ₹8,008.39

C. ₹7,820.12

D. ₹7,948.74

Q17 Mathematics

A number, when increased by 60%, gives 3640. The number is:

A. 1137.5

B. 2275



C. 4550

D. 6825



Q18 Mathematics

Which of the following numbers divides 74,75,79,723?

- A. 13
- B. 9
- C. 8
- D. 11

**Q19 Mathematics**

Evaluate: $(-9) - (-60) \div (-12) + (-2) \times 9$

- A. -32
- B. -31
- C. -35
- D. -34

**Q20 Mathematics**

The sum of the squares of two consecutive even natural numbers is 452. The sum of the numbers is:

- A. 26
- B. 48
- C. 30
- D. 44

**Q21 Mathematics**

I bought two bicycles for ₹1,200. I sold the first one at a loss of 9% and the second at a gain of 27%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first bicycle.

- A. 884
- B. 924
- C. 920
- D. 900

**Q22 Mathematics**

A man goes to Lucknow from Kanpur at a speed of 18 km/hr and returns to Kanpur at speed of 36 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

- A. 22
- B. 24
- C. 18
- D. 27

**Q23 Mathematics**

If the 6-digit number N42M47 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

- A. $M + N = 5$
- B. $M - N = -5$
- C. $M - N = 1$
- D. $M = N$

**Q24 Mathematics**

A shopkeeper offers the following four discount schemes to his customers for the purchase of articles in his shop.

- (i) Buy 5 and get 3 free
- (ii) Buy 6 and get 3 free
- (iii) Buy 20 and get 5 free
- (iv) Buy 8 and get 6 free

Which scheme is the most beneficial to the customers?

- A. (iv)
- B. (i)
- C. (iii)
- D. (ii)

**Q25 Mathematics**

If 3 times Mary's present age is 27 years more than 9 times Diya's present age, and 4 times Diya's present age is 7 years less than Mary's present age, then what is the difference (in years) between the ages of Mary and Diya?

- A. 10
- B. 17
- C. 13
- D. 8



Q26 Mathematics

A can lay railway track between two given stations in 19 days and B can do the same job in 11 days. With the help of C, they did the job in 2 days only. Then, C alone can do the job in

A. $12\frac{120}{149} \text{ days}$

B. $11\frac{120}{149} \text{ days}$

C. $6\frac{120}{149} \text{ days}$

D. $2\frac{120}{149} \text{ days}$ ✓

Q27 Mathematics

Pipe P can fill $\frac{5}{6}$ part of a tank in 30 hours, and pipe Q can fill $\frac{3}{4}$ part of the same tank in 27 hours.

Both P and Q were kept open for 2 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 4 hours. Pipes P, Q and R together can fill the empty tank in:

A. 44 hours

B. 36 hours ✓

C. 48 hours

D. 54 hours

Q28 Mathematics

A trader claims to sell flour at a profit of 44%, but also dishonestly uses a weight which is 10% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 63%

B. 60% ✓

C. 62%

D. 61%

Q29 Mathematics

Simplify: $2\left(\left(\frac{7}{2}\right)x^2 - 28x + 17\right) - 7(x^2 + 6x - 11)$

A. $98x - 111$

B. $-98x + 111$ ✓

C. $98x + 111$

D. $-98x - 111$



Simplify:

$$\sec\theta (1 + \sin\theta)(\sec\theta - \tan\theta)$$

A. -1

B. $\sec\theta$

C. 1



D. $\tan\theta$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Anand, Preeti and Dev invested ₹1,310, ₹1,350 and ₹1,140, respectively to start a business. If the profit at the end of the year is ₹1,630, what is Dev's share of the profit?

A. ₹487

B. ₹489

C. ₹490

D. ₹488

Q2 Mathematics

The LCM of $4^3 \times 6^2 \times 15$, $4^2 \times 15^2 \times 19$ and $6^3 \times 15^2 \times 19^2$ is:

A. $28 \times 35 \times 53 \times 192$ B. $28 \times 34 \times 52 \times 192$ C. $29 \times 35 \times 52 \times 192$ D. $28 \times 35 \times 52 \times 192$

Q3 Mathematics

What smallest number should be added to 74978 so that the sum is completely divisible by 24?

A. 22

B. 26

C. 20

D. 17

Q4 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹1,760, and the rate of interest is 10% per annum compounded annually, then the sum is:

A. ₹15,990

B. ₹15,495

C. ₹16,000

D. ₹16,405

Q5 Mathematics

Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 4.5 years at 20% per annum rate of interest.

A. 340

B. 360

C. 460

D. 410

Q6 Mathematics

The population of a district is 374000, out of which 170000 are males. 78% of the population is literate. If 72% males are literate, then what percentage of females are literate?

A. 80%

B. 83%

C. 81%

D. 85%

Q7 Mathematics

Simplify: $x(8x - 7) + 7(x^2 - 5) + 14$

A. $15x^2 - 7x - 21$ B. $-15x^2 - 7x + 21$ C. $-15x^2 - 7x - 21$ D. $15x^2 - 7x + 21$

Q8 Mathematics

Anshuman and Kunal together invested ₹48,300 in a business. At the end of the year, out of a total profit of ₹14,000, Kunal's share was ₹6,000. What was the difference between their investments?

A. ₹6,900

B. ₹7,640

C. ₹6,500

D. ₹5,940



Q9 Mathematics

The marks scored by 10 students are given below.

19, 15, 10, 14, 13, 18, 19, 19, 11, 11

The mode of the data is:

A. 19



B. 10

C. 20

D. 15

Q10 Mathematics

Five solid cubes, each of volume 512000 cm^3 , are joined end to end to form a cuboid. What is the lateral surface area (in cm^2) of the cuboid?

A. 76949

B. 76820

C. 76800



D. 76903

Q11 Mathematics

The sum of two numbers is 121 and their L.C.M. is 264. What are the two numbers?

A. 93, 28

B. 81, 40

C. 86, 35

D. 88, 33

**Q12 Mathematics**

A toy designer is making a spherical ball with a radius of 6 cm. What is the surface area of the ball? (Use $\pi = 3.14$)

A. 301.44 cm^2

B. 452.16 cm^2



C. 282.74 cm^2

D. 678.24 cm^2

Q13 Mathematics

A shopkeeper lists the price of a fan at 50% above its cost price and offers a 30% discount on its list price. If he earns a profit of ₹91, then what is the list price (in ₹) of the fan?

A. 2,774

B. 3,025

C. 2,730



D. 2,697

Q14 Mathematics

If one interior angle of a regular polygon is greater than its exterior angle by 144° , how many sides does the polygon have?

A. 19

B. 21

C. 20



D. 18

Q15 Mathematics

6 years ago, the age of a father was 34 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 24

B. 26

C. 28



D. 23

Q16 Mathematics

The average weight of Gopal, Akshay and Atul is 45 kg. If the average weight of Gopal and Akshay is 44 kg and that of Akshay and Atul is 46 kg, then the weight of Akshay (in kg) is:

A. 65

B. 55

C. 60

D. 45

**Q17 Mathematics**

If the third proportional of 9 and 51 be x, then what is the value of x?

A. 291

B. 287

C. 289



D. 288

Q18 Mathematics

A dealer wants to make a 20% profit on a smart watch that costs him ₹1,575. To attract customers, he plans to offer a 10% discount on the listed price. At what price should he list the smart watch to achieve his desired profit?

A. ₹1,890

B. ₹1,654

C. ₹2,100



D. ₹1,918



Q19 Mathematics

Yash travels 152 km at 38 km/hr, the next 189 km at 63 km/hr and the next 375 km at 75 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

A. 59.67



B. 58.22

C. 51.83

D. 70.03

Q20 Mathematics

Mahesh bought some pens at the rate of ₹150 a dozen. He sold them for ₹44 each. His profit percentage is ____%.

A. 256

B. 254

C. 252



D. 250

Q21 Mathematics

A number, when increased by 80%, gives 2520. The number is:

A. 2800

B. 700

C. 4200

D. 1400

**Q22 Mathematics**

The marked price of an article is ₹4,500. It is sold at successive discounts of 25% and 20%. Find the selling price of the article (in ₹).

A. 2,900

B. 2,700



C. 2,750

D. 2,800

Q23 Mathematics

The cost of 9 pens and 9 pencils is ₹252. If the cost of a pen decreases by ₹1 and the cost of a pencil increases by ₹3, then the cost of 13 pens and 3 pencils is ₹100. What is the original cost of 10 pens and 19 pencils?

A. ₹514



B. ₹516

C. ₹517

D. ₹513

Q24 Mathematics

Which of the following numbers divides 2,45,015?

A. 11

B. 15

C. 5



D. 2

Q25 Mathematics

Find the value of: $[428 \div \{17 + 8 \times (5 - 7)\}]$.

A. 426

B. 428



C. 427

D. 429

Q26 Mathematics

Arjun and Malaika have to travel from Delhi to Kanpur in their respective cars. Arjun is driving at 140 km/hr while Malaika is driving at 65 km/hr. Find the time taken by Malaika to reach Kanpur if Arjun takes 13 hours.

A. 25 hours

B. 34 hours

C. 28 hours



D. 26 hours



Q27 Mathematics

Pipe A can fill a tank in 16 hours, pipe B can fill the same tank in 21 hours and pipe C can fill the same tank in 15 hours. The time taken by them to fill the same tank if they operate together is::

A. $6\frac{65}{99} \text{ hours}$

B. $8\frac{65}{99} \text{ hours}$

C. $5\frac{65}{99} \text{ hours}$ 

D. $7\frac{65}{99} \text{ hours}$

Q28 Mathematics

Pipe P can fill $\frac{5}{7}$ part of a tank in 30 hours, and pipe Q can fill $\frac{4}{7}$ part of the same tank in 12 hours.

Both P and Q were kept open for 7 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 9 hours. Pipes P, Q and R together can fill the empty tank in:

A. 63 hours 

B. 78 hours

C. 56 hours

D. 82 hours

Q29 Mathematics

What is the value of the given expression?

$$\frac{\sin^4 A - \cos^4 A + 1}{1 + \frac{1}{\tan^2 A}}$$

A. $2\sin^2 A + \tan^2 A$

B. $2\sin^4 A$ 

C. $2\sin A \cdot \cos A$

D. $\frac{\sin A \cdot \cos A}{\tan^2 A}$



The value of $8^2 + \sqrt{9^2} - 4\sqrt{25} - 14$ is

A. 39



B. 48

C. 49

D. 45



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Train A leaves station M at 6:30 AM and reaches station N at 3:30 PM on the same day. Train B leaves station N at 8:30 AM and reaches station M at 2:30 PM on the same day. Find the time when trains A and B meet.

A. 12:18 PM

B. 11:18 AM ✓

C. 11:38 AM

D. 11:08 AM

Q2 Mathematics

X, Y and Z invest a sum in the ratio of 16 : 82 : 2, respectively. If they earned a total profit of ₹2,750 at the end of the year, then what is the difference between share of Y and Z?

A. ₹2,191

B. ₹2,159

C. ₹2,200 ✓

D. ₹2,122

Q3 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 10 months.

A. ₹480

B. ₹80

C. ₹60

D. ₹40 ✓

Q4 Mathematics

The HCF and LCM of two numbers are 72 and 432, respectively. If one of the numbers is 144, find the other one.

A. 288

B. 144

C. 72

D. 216 ✓

Q5 Mathematics

Find the mean proportional of 96 and 54.

A. 75

B. 71

C. 69

D. 72 ✓

Q6 Mathematics

The average weight of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 75 kg and 37 kg is:

A. 50.4 kg

B. 51.4 kg ✓

C. 53.4 kg

D. 52.4 kg

Q7 Mathematics

A trader offers one kitchen set free with each kitchen set purchased at the marked price. If he still makes a profit of 20%, at what percentage above the cost price has the trader marked the kitchen set?

A. 50%

B. 150%

C. 140% ✓

D. 40%

Q8 Mathematics

A man goes to Nagpur from Visakhapatnam at a speed of 3 km/hr and returns to Visakhapatnam at speed of 6 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

A. 4 ✓

B. 7

C. 3

D. 2



Q9 Mathematics

The number 716710501 is divisible by which of the following?

- A. 19
- B. 13
- C. 16
- D. 20

**Q10 Mathematics**

A book is sold at three successive discounts of 8%, 4%, and 5%. If the marked price of the book is ₹3,125, find its net selling price.

- A. ₹2,594
- B. ₹2,465
- C. ₹2,622
- D. ₹2,492

**Q11 Mathematics**

The average of first 163 even numbers is

- A. 164.5
- B. 165
- C. 163.5
- D. 164

**Q12 Mathematics**

8 years ago, the age of a father was 20 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

- A. 8
- B. 12
- C. 7
- D. 16

**Q13 Mathematics**

The number of prime numbers between 374 and 381, both included, is:

- A. 2
- B. 3
- C. 1
- D. 4

**Q14 Mathematics**

M and N start a business. M invests ₹17,000 more than N for 6 months and N invests for 5 months. M's share is ₹498 more than that of N, out of a total profit of ₹1,494. Find the capital contributed by M.

- A. ₹42,500
- B. ₹42,304
- C. ₹42,661
- D. ₹42,326

**Q15 Mathematics**

If the interest earned during the 2nd year on a certain sum is ₹6,534, and the rate of interest is 20% per annum compounded annually, then the sum is:

- A. ₹27,225
- B. ₹28,030
- C. ₹27,630
- D. ₹28,205

**Q16 Mathematics**

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 58^\circ$. E is a point on BC such that $\angle CAE = 16^\circ$. What is the measure of $\angle AEB$?

- A. 49°
- B. 48°
- C. 52°
- D. 42°

**Q17 Mathematics**

Simplify the given expression.

$$x(7x - 5) + 3(x^2 - 2) + 14$$

- A. $-10 \times 2 - 5x - 8$
- B. $10 \times 2 - 5x - 8$
- C. $10 \times 2 - 5x + 8$
- D. $-10 \times 2 - 5x + 8$

**Q18 Mathematics**

The product of two consecutive natural numbers is 110. The greater of the two numbers is:

- A. 5
- B. 3
- C. 11
- D. 7



Q19 Mathematics

The current population of a town is 14,568. It increases by 25% and 60% in two successive years but decreases by 50% in the third year. What is the population of the town at the end of the third year?

A. 14,565

B. 14,573

C. 14,568



D. 14,563

Q20 Mathematics

Simplify: $\frac{(\tan^2 \beta \operatorname{cosec}^2 \beta)}{(1 + \tan^2 \beta)}$

A. -1 B. 1 C. $\sec \beta$ D. $\tan \beta$ **Q21 Mathematics**

Pallavi bought a toy for ₹578, decorated it at a cost of ₹14 and sold the toy for ₹476. Find the loss or profit percentage.

A. $\frac{725}{37}\%$ profitB. $\frac{725}{37}\%$ lossC. 725% lossD. $\frac{735}{37}\%$ profit**Q22 Mathematics**

The value of $7^2 + \sqrt{8^2} - 5\sqrt{16} - 14$ is

A. 16

B. 23



C. 26

D. 31



Q23 Mathematics

By how much is 65% of 75 greater than $\frac{3}{5}$ of 45?

A. 18.75

B. 21.75



C. 19.75

D. 15.75

Q24 Mathematics

By selling an article at $\frac{5}{14}$ of its actual selling price, Hitesh incurs a loss of 25%. If he sells it at 58% of its actual selling price, then the profit percentage is:

A. 23.7%

B. 22.5%

C. 21.8%



D. 23.1%

Q25 Mathematics

What is the volume of a cylindrical container that has a base radius of 3.5 metres and a height of 5.2 metres?

A. 63.7π cubic metres



B. 67.3π cubic metres

C. 65.4π cubic metres

D. 68.6π cubic metres

Q26 Mathematics

The value of $\frac{5}{3} + \left(\frac{1}{1 + \frac{4}{9}} \right) - \frac{2}{5}$ is

A. $\frac{384}{191}$

B. $\frac{382}{195}$



C. $\frac{379}{201}$

D. $\frac{380}{197}$



Q27 Mathematics

Pipe P can fill $\frac{4}{5}$ part of a tank in 12 hours and pipe Q can fill $\frac{2}{7}$ part of the same tank in 30 hours.

Both P and Q were kept open for 5 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 8 hours.

Pipes P, Q and R together can fill the empty tank in:

A. 17 hours

B. 35 hours



C. 43 hours

D. 18 hours

Q28 Mathematics

Find the circumference (in m) of the largest circle that can be drawn completely inside a rectangle whose dimensions are given as 63 m and 116 m.

(Take $\pi = \frac{22}{7}$.)

A. 190

B. 202

C. 198



D. 200

Q29 Mathematics

The value of $\sqrt{121} + \sqrt{0.0225} - \sqrt{5.76} =$

A. 12.62

B. 5.35

C. 8.75



D. 13.05

Q30 Mathematics

Pipe A can fill a tank in 11 hours, pipe B can fill the same tank in 24 hours and pipe C can fill the same tank in 19 hours. The time taken by them to fill the same tank if they operate together is::

A. $7\frac{371}{929}$ hours

B. $5\frac{371}{929}$ hours



C. $9\frac{371}{929}$ hours

D. $4\frac{371}{929}$ hours



Mathematics

30 Questions • Answer Key

Q1 Mathematics

The average runs scored by a batsman in 23 matches is 43. In the next 10 matches, the batsman scored an average of 16 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

A. 34.82



B. 33.82

C. 35.82

D. 36.82

Q2 Mathematics

The cost of 2 pens and 15 pencils is ₹286. If the cost of a pen decreases by ₹4 and the cost of a pencil increases by ₹2, then the cost of 17 pens and 3 pencils is ₹128. What is the original cost of 11 pens and 8 pencils?

A. ₹229

B. ₹228

C. ₹232



D. ₹235

Q3 Mathematics

Find the value of $95^{-17} \div 95^9 \times 95^{-15}$.

A. 95-35

B. 95-49

C. 95-42

D. 95-41



Q4 Mathematics

Simplify: $x(2x - 3) + 2(x^2 - 4) + 16$

A. $-4 \times 2 - 3x + 8$ B. $4 \times 2 - 3x + 8$ C. $4 \times 2 - 3x - 8$ D. $-4 \times 2 - 3x - 8$

Q5 Mathematics

Sapna invested ₹20,300 on simple interest, partly at the rate of 8% per annum and partly at the rate of 6% per annum. If she earns equal interests from the two investments after 6 years, then find the sum invested at the rate of 8% per annum (in ₹).

A. 8,700



B. 8,702

C. 8,697

D. 8,699

Q6 Mathematics

The number 563607 is divisible by which of the following?

A. 10

B. 8

C. 13

D. 3



Q7 Mathematics

A dealer offers successive discounts of 15% and 12% on a refrigerator marked at ₹25,000. What is the final selling price?

A. ₹18,900

B. ₹18,700



C. ₹18,800

D. ₹19,000

Q8 Mathematics

A number, when increased by 70%, gives 3400. The number is:

A. 6000

B. 2000



C. 4000

D. 1000



Q9 Mathematics

If the third proportional of 8 and 20 be x , then what is the value of x ?

- A. 48
- B. 52
- C. 47
- D. 50

**Q10 Mathematics**

The LCM of the numbers 5.3 and 0.4 is:

- A. 2.12
- B. 0.212
- C. 21.2
- D. 212

**Q11 Mathematics**

The marked price of a shirt is ₹500. If the shopkeeper offers a 20% discount, what is the selling price of the shirt?

- A. ₹420
- B. ₹400
- C. ₹480
- D. ₹450

**Q12 Mathematics**

Two pipes can fill a cistern, individually, in 36 min and 45 min, respectively. There is a pipe located at the bottom of the cistern to empty it. If all the three pipes are opened simultaneously, then the empty cistern gets filled in 70 min. How long will the pipe at the bottom of the tank take to empty the completely filled cistern if no other pipe is then open?

- A. 8 min
- B. 28 min
- C. 20 min
- D. 44 min

**Q13 Mathematics**

If 3 times a mother's present age is 24 years more than 9 times her daughter's present age, and 4 times the daughter's present age is 2 years less than the mother's present age, then what is the difference (in years) between the ages of the mother and the daughter?

- A. 20
- B. 17
- C. 22
- D. 15

**Q14 Mathematics**

The marks scored by 10 students are given below.

17, 19, 12, 20, 19, 14, 15, 18, 19, 14

The mode of the given data is:

- A. 17
- B. 12
- C. 19
- D. 20

**Q15 Mathematics**

Train A leaves station M at 6:25 AM and reaches station N at 3:25 PM on the same day. Train B leaves station N at 8:25 AM and reaches station M at 2:25 PM on the same day. Find the time when trains A and B meet.

- A. 10:53 AM
- B. 11:43 AM
- C. 12:13 PM
- D. 11:13 AM

**Q16 Mathematics**

Ishaan and Meghna have to travel from Delhi to Kanpur in their respective cars. Ishaan is driving at 90 km/hr while Meghna is driving at 65 km/hr. Find the time taken by Meghna to reach Kanpur if Ishaan takes 13 hours.

- A. 27 hours
- B. 18 hours
- C. 21 hours
- D. 23 hours

**Q17 Mathematics**

Salman and Vivek together invested ₹33,900 in a business. At the end of the year, out of a total profit of ₹10,000, Vivek's share was ₹3,700. What was the difference between their investments?

- A. ₹9,551
- B. ₹8,840
- C. ₹9,547
- D. ₹8,814



Q18 Mathematics

In an election between two candidates, 80% of the registered voters cast their vote and 19% of the votes polled were found invalid. The winning candidate got 70% of the valid votes and won the election by a margin of 1458 votes. How many voters were registered?

A. 5625



B. 5623

C. 5627

D. 5622

Q19 Mathematics

I bought two pendants for ₹1,200. I sold the first one at a loss of 10% and the second at a gain of 14%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first pendant.

A. 700



B. 724

C. 720

D. 684

Q20 Mathematics

Ritu, Sameer, and Isha invest ₹1,190, ₹1,060, and ₹1,350, respectively, to start a business. If the profit at the end of the year is ₹1,640, then what is the share of Isha in the profit?

A. ₹613

B. ₹617

C. ₹615



D. ₹614

Q21 Mathematics

If the sum of the interior angles of a regular polygon is equal to four times the sum of its exterior angles, then what is the number of diagonals in the polygon?

A. 35



B. 25

C. 40

D. 30

Q22 Mathematics

Five solid cubes, each of volume 39304 cm^3 , are joined end to end to form a cuboid. What is the lateral surface area (in cm^2) of the cuboid?

A. 13905

B. 13872



C. 13838

D. 13877

Q23 Mathematics

The HCF and the LCM of two numbers are 17 and 1224, respectively. If one of the numbers is 136, find the other one.

A. 119

B. 102

C. 85

D. 153

**Q24 Mathematics**

Find the simple interest (in ₹) on ₹4,000 at 7.5% per annum rate of interest deposited on 4 February 2024 and withdrawn on 5 April 2024.

A. 49

B. 50



C. 51

D. 48



Q25 Mathematics

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

A. $\frac{89}{126}$

B. $\frac{85}{134}$

C. $\frac{93}{125}$

D. $\frac{83}{132}$

**Q26** Mathematics

The selling price of 10 books is equal to the cost price of 16 books. Find the loss or gain percentage on these books.

A. 60% loss

B. $\frac{100}{6}\%$ gain

C. $\frac{100}{6}\%$ loss

D. 60% gain

**Q27** Mathematics

What is the surface area of a sphere of radius 8 cm? (use $\pi = 3.14$)

A. 805.54 cm^2

B. 801.18 cm^2

C. 803.84 cm^2

D. 800.08 cm^2

**Q28** Mathematics

The value of $\sqrt{196} + \sqrt{0.0361} - \sqrt{7.29}$ is ____.

A. 9.66

B. 11.49

C. 16.25

D. 16.65



Q29 Mathematics

If $P = \tan\theta + \sec\theta$, then the value of $\tan\theta$ is:

A. $\frac{P^2 + 1}{P}$

B. $\frac{P^2 - 1}{P + 1}$

C. $\frac{P^2 - 1}{2P}$



D. $\frac{P^2 + 1}{2P}$

Q30 Mathematics

Pipe A can fill a tank in 18 hours, pipe B can fill the same tank in 28 hours and pipe C can fill the same tank in 11 hours. The time taken by them to fill the same tank if they operate together is::

A. $5\frac{247}{505} \text{ hours}$



B. $10\frac{247}{505} \text{ hours}$

C. $7\frac{247}{505} \text{ hours}$

D. $11\frac{247}{505} \text{ hours}$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

If the radius of the base of a right circular cylinder is decreased by 46% and its height is increased by 261%, then what is the percentage increase (closest integer) in its volume?

A. 19%

B. 5% ✓

C. 17%

D. 35%

Q2 Mathematics

Train A leaves station M at 8:35 AM and reaches station N at 3:35 PM on the same day. Train B leaves station N at 10:35 AM and reaches station M at 3:35 PM on the same day. Find the time when trains A and B meet.

A. 11:50 AM

B. 12:10 PM

C. 12:50 PM

D. 12:40 PM ✓

Q3 Mathematics

Vijay got an increase of 4% in his sales amount in the first year and 25% in the second year; also with this, his current sales are ₹1,50,800, what was his sales (in ₹) two years ago?

A. ₹1,16,000 ✓

B. ₹1,45,000

C. ₹1,20,640

D. ₹96,000

Q4 Mathematics

If the sum of the measures of all the interior angles of a regular polygon is 2520° , then what is the exterior angle of the polygon?

A. 37.5° B. 22.5° ✓C. 90° D. 42.5°

Q5 Mathematics

Evaluate: $(-9) - (-60) \div (-10) + (-3) \times 9$

A. -41

B. -45

C. -42 ✓

D. -44

Q6 Mathematics

If 4 times a son's age is added to his father's age, the sum is 46 years. If 2.8 times the father's age is added to the son's age, the sum is 88 years. What is the father's age (in years)?

A. 35

B. 25

C. 30 ✓

D. 28

Q7 Mathematics

Find the effective discount for the scheme – Buy 12, get 8 free.

A. 20%

B. 21%

C. 40% ✓

D. 10%

Q8 Mathematics

Sapna invested ₹22,800 on simple interest, partly at 5% per annum and partly at 11% per annum. If she earns equal interests from the two investments after 4 years, then find the sum invested at 5% per annum (in ₹).

A. 15,678

B. 15,676

C. 15,677

D. 15,675 ✓



Q9 Mathematics

Which of the following numbers divides 393064111?

A. 15

B. 11



C. 14

D. 10

Q10 Mathematics

Find the surface area of a sphere with a radius of 5 cm.

(Use $\pi = 3.14$)

A. 628 cm²

B. 31.4 cm²

C. 314 cm²



D. 3140 cm²

Q11 Mathematics

If the third proportional of 8 and 16 be x, then what is the value of x?

A. 34

B. 35

C. 31

D. 32

**Q12 Mathematics**

A sum of money triples itself at a certain rate of compound interest in 15 years. In how many years will it amount to 27 times of itself?

A. 39 years

B. 36 years

C. 45 years



D. 55 years

Q13 Mathematics

An article is sold at a profit of 57%. If the cost price is increased by ₹20 and the selling price is reduced by ₹18, then the profit would be 47.5%. What is the original cost price (in ₹) of the article?

A. 400

B. 300

C. 500



D. 200

Q14 Mathematics

A number, when increased by 60%, gives 3610. The number is:

A. 1128.125

B. 2256.25



C. 6768.75

D. 4512.5

Q15 Mathematics

The product of two positive numbers is 245. If the first number is five times the second number, then the sum of the two numbers is:

A. 40

B. 42



C. 38

D. 51

Q16 Mathematics

A store offers a discount of 14% on a television marked at ₹78,000. During a sale, an additional 8% discount is offered on the already discounted price. What is the total discount percentage?

A. 22.48%

B. 18.23%

C. 21.62%

D. 20.88%

**Q17 Mathematics**

The average of first 159 even numbers is

A. 161

B. 160



C. 160.5

D. 159.5

Q18 Mathematics

88 tube lights were purchased for ₹88, and 46 tube lights broke in transit. The trader sold the remaining tube lights at ₹3.10 each. Find his profit.

A. ₹36.60

B. ₹42.20



C. ₹48.20

D. ₹47.10



Q19 Mathematics

Given that $112^{0.57} = x$, $112^{0.8} = y$ and $x^z = y^6$, then the value of z is close to:

A. 8.42



B. 9.12

C. 10.14

D. 8.45

Q20 Mathematics

A bus travelling at 10 km/hr completes a journey in 16 hours. At what speed will it have to cover the same distance in 8 hours?

A. 14 km/hr

B. 25 km/hr

C. 20 km/hr



D. 10 km/hr

Q21 Mathematics

An amount of ₹570 is divided among three persons in the ratio of 2 : 12 : 11. The difference between the largest and the smallest shares (in ₹) in the distribution is:

A. 228



B. 293

C. 166

D. 284

Q22 Mathematics

The marks scored by 10 students are given below.
20, 16, 16, 19, 16, 12, 19, 10, 14, 18
The mode of the given data is:

A. 20

B. 16



C. 19

D. 12

Q23 Mathematics

Praveen and Hemant start a business. Praveen invests ₹78,000 more than Hemant for 5 months and Hemant invests for 6 months. Praveen's share is ₹1,360 more than that of Hemant, out of a total profit of ₹5,440. Find the capital contributed by Praveen.

A. ₹1,56,000



B. ₹1,56,185

C. ₹1,55,955

D. ₹1,55,875

Q24 Mathematics

The HCF and the LCM of two numbers are 18 and 216, respectively. If one of the numbers is 72, find the other one.

A. 10

B. 5

C. 25

D. 54

**Q25 Mathematics**

If the 6-digit number $N36M77$ is divisible by 11, then which of the options below can give a possible correct relation between M and N ?

A. $M + N = -3$

B. $M - N = 3$



C. $M - N = 1$

D. $M = N$



Q26 Mathematics

A can do a work in 12 days and B can do the same work in 25 days. If they work on it together for 6 days, then what fraction of the work is left?

A. $\frac{13}{50}$



B. $\frac{9}{50}$

C. $\frac{21}{50}$

D. $\frac{17}{50}$

Q27 Mathematics

Simplify: $\frac{(\sin\theta - \cos\theta)(1 + \tan\theta + \cot\theta)}{1 + \sin\theta\cos\theta} + \frac{\sin\theta}{1 + \cos\theta} + \frac{1 + \cos\theta}{\sin\theta}$

A. $\sin\theta + \cos\theta$

B. $\sin\theta\sec\theta$

C. $\tan\theta + \sec\theta$

D. $\operatorname{cosec}\theta + \sec\theta$

**Q28 Mathematics**

Simplify the following.

$$2\left(\left(\frac{3}{2}\right)x^2 - 20x + 17\right) - 3(x^2 + 7x - 15)$$

A. $-61x - 79$

B. $61x - 79$

C. $-61x + 79$



D. $61x + 79$



Q29 Mathematics

The value of $\frac{4}{3} + \left(\frac{1}{1 + \frac{2}{7}} \right) - \frac{2}{3}$ is

A. $\frac{13}{9}$



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

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

D. $\frac{16}{19}$

Q30 Mathematics

Pipe P can fill $\frac{3}{8}$ part of a tank in 30 hours, and pipe Q can fill $\frac{4}{5}$ part of the same tank in 16 hours.

Both P and Q were kept open for 4 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 8 hours. Pipes P, Q and R together can fill the empty tank in:

A. 21 hours

B. 32 hours



C. 35 hours

D. 40 hours



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Evaluate: $(-9) - (-60) \div (-10) + (-4) \times 8$

A. -50

B. -46

C. -49

D. -47 ✓

Q2 Mathematics

If the sum of the interior angles of a regular polygon is equal to four times the sum of its exterior angles, then what is the number of diagonals in the polygon?

A. 31

B. 35 ✓

C. 33

D. 28

Q3 Mathematics

Sapna invested ₹20,300 on simple interest, partly at the rate of 5% per annum and partly at the rate of 9% per annum. If she earns equal interests from the two investments after 7 years, then find the sum invested at the rate of 5% per annum (in ₹).

A. 13,049

B. 13,050 ✓

C. 13,052

D. 13,051

Q4 Mathematics

Which of the following numbers divides 5,63,607?

A. 10

B. 8

C. 3 ✓

D. 13

Q5 Mathematics

M and N start a business. M invests ₹33,000 more than N for 2 months and N invests for 7 months. M's share is ₹605 more than that of N, out of a total profit of ₹1,815. Find the capital contributed by M.

A. ₹38,500 ✓

B. ₹38,339

C. ₹38,697

D. ₹38,300

Q6 Mathematics

If one trouser is offered free on the purchase of three trousers, what is the effective discount percentage?

A. 30%

B. 15%

C. 25% ✓

D. 20%

Q7 Mathematics

By selling 6 lemons for a rupee, a man loses 30%. To gain 5% how many must he sell for a rupee?

A. 6

B. 3

C. 4 ✓

D. 5

Q8 Mathematics

8 men can complete a piece of work in 5 days, while 8 women can do it in 15 days. In how many days can 3 women and 4 men complete this work?

A. 7 days

B. 5 days

C. 9 days

D. 8 days ✓



Q9 Mathematics

A bus travelling at 84 km/hr completes a journey in 6 hours. What should be its speed to cover the same distance in 12 hours?

- A. 46 km/hr
- B. 44 km/hr
- C. 32 km/hr
- D. 42 km/hr

**Q10 Mathematics**

Find the mean proportional of 81 and 36.

- A. 56
- B. 52
- C. 53
- D. 54

**Q11 Mathematics**

The population of a district is 360000, out of which 231000 are males. 66% of the population is literate. If 66% males are literate, then what percentage of females are literate?

- A. 67%
- B. 63%
- C. 66%
- D. 64%

**Q12 Mathematics**

The ratio between the perimeter and the length of a rectangle is 3 : 1. If the area of the rectangle is 180.5 cm^2 , then what is the breadth of the rectangle?

- A. 19 cm
- B. 9.5 cm
- C. 21 cm
- D. 38 cm

**Q13 Mathematics**

The H.C.F. and the L.C.M. of two numbers are 4 and 3360 respectively. If one of the numbers is 96, find the other one.

- A. 92
- B. 140
- C. 116
- D. 164

**Q14 Mathematics**

3 years ago, the age of a father was 40 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

- A. 37
- B. 38
- C. 32
- D. 33

**Q15 Mathematics**

The product of two consecutive positive natural numbers is 462. The greater of the two numbers is:

- A. 24
- B. 22
- C. 21
- D. 23

**Q16 Mathematics**

Train A leaves station M at 6:40 AM and reaches station N at 3:40 PM on the same day. Train B leaves station N at 8:40 AM and reaches station M at 2:40 PM on the same day. Find the time when trains A and B meet.

- A. 12:28 PM
- B. 11:28 AM
- C. 11:58 AM
- D. 1:28 PM

**Q17 Mathematics**

The marks scored by 10 students are given below.

12, 13, 14, 11, 16, 11, 12, 17, 15, 12

The mode of the data is:

- A. 14
- B. 13
- C. 12
- D. 11

**Q18 Mathematics**

Find the H.C.F. and L.C.M. of 0.48, 1.20 and 1.68.

- A. H.C.F. = 0.24; L.C.M. = 4.80
- B. H.C.F. = 0.24; L.C.M. = 16.8
- C. H.C.F. = 0.12; L.C.M. = 2.40
- D. H.C.F. = 0.12; L.C.M. = 1.68



Q19 Mathematics

Pankaj, Juhi and Siddharth invested ₹1,020, ₹1,740 and ₹1,840, respectively to start a business. If the profit at the end of the year is ₹1,050, what is Siddharth's share of the profit?

A. ₹420



B. ₹418

C. ₹422

D. ₹423

Q20 Mathematics

The average runs scored by a batsman in 23 matches is 44. In the next 10 matches, the batsman scored an average of 13 runs. Find his average (rounded off to two decimals) in all the 33 matches?

A. 34.61



B. 33.61

C. 36.61

D. 35.61

Q21 Mathematics

Find the volume (in cm^3) of a sphere having a diameter of 16.8 cm, giving your answer correct to two decimal places.

Take $\pi = \frac{22}{7}$.

A. 2483.71



B. 2493.71

C. 2473.71

D. 2503.71

Q22 Mathematics

The simple interest on a certain sum for $3\frac{5}{9}$ years at the rate of 2.7% per annum is ₹2,808.

What will be the amount payable on the same sum at the rate of 9.2% per annum simple interest in $5\frac{2}{3}$ years?

A. ₹44,489

B. ₹44,482

C. ₹44,514

D. ₹44,499

**Q23 Mathematics**

Simplify: $\sec^2\phi \cot^2\phi - \frac{1}{\tan^2\phi} + 2\left(\frac{1}{\operatorname{cosec}^2\phi} + \frac{1}{\sec^2\phi}\right)$

A. 0

B. 2

C. 3



D. 1



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Q24 Mathematics

A can lay railway track between two given stations in 20 days and B can do the same job in 15 days. With the help of C, they did the job in 3 days only. Then, C alone can do the job in

A. $1\frac{8}{13} \text{ days}$

B. $4\frac{8}{13} \text{ days}$ ✓

C. $10\frac{8}{13} \text{ days}$

D. $11\frac{8}{13} \text{ days}$

Q25 Mathematics

A mobile phone is marked at ₹30,000. Successive discounts of 20% and 10% are applied. What is the final selling price?

A. ₹22,600

B. ₹24,000

C. ₹21,600 ✓

D. ₹24,600

Q26 Mathematics

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

A. $\frac{162}{227}$

B. $\frac{146}{225}$

C. $\frac{145}{229}$

D. $\frac{153}{220}$ ✓

Q27 Mathematics

Simplify: $3 \left(\left(\frac{6}{3} \right) x^2 - 29x + 14 \right) - 6(x^2 + 5x - 13)$

A. $117x - 120$

B. $-117x + 120$ ✓

C. $-117x - 120$

D. $117x + 120$



Q28 Mathematics

The selling price of 50 books is equal to the cost price of 15 books. Find the loss or gain percentage on these books.

A. 70% loss



B. 70% gain

C. $\frac{100}{35}\%$ loss

D. $\frac{100}{35}\%$ gain

Q29 Mathematics

The value of $\sqrt{400} + \sqrt{0.0289} - \sqrt{7.84} =$

A. 17.37



B. 16.15

C. 12.83

D. 15.86

Q30 Mathematics

By how much is 65% of 75 greater than $\frac{3}{5}$ of 35?

A. 21.75

B. 27.75



C. 24.75

D. 25.75



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Find the value of: $[616 \div \{26 + 9 \times (5 - 7)\}]$.

A. 78

B. 79

C. 82

D. 77 ✓

Q2 Mathematics

What is the area (rounded off to the nearest integer) of a triangle whose three sides measure 11 cm, 15 cm and 16 cm?

A. 82 cm²B. 84 cm²C. 79 cm² ✓D. 87 cm²

Q3 Mathematics

Two pipes can fill a cistern, individually, in 16 minutes and 32 minutes, respectively. There is a pipe located at the bottom of the cistern to empty it. If all the three pipes are opened simultaneously, then the empty cistern gets filled in 12 minutes. How long will the pipe at the bottom of the tank take to empty the completely filled cistern if no other pipe is then open?

A. 144 minutes

B. 96 minutes ✓

C. 160 minutes

D. 192 minutes

Q4 Mathematics

M and N start a business. M invests ₹39,000 more than N for 4 months and N invests for 7 months. M's share is ₹508 more than that of N, out of a total profit of ₹4,064. Find the capital contributed by M.

A. ₹70,200 ✓

B. ₹70,322

C. ₹70,243

D. ₹70,391

Q5 Mathematics

5 years ago, the age of a father was 11 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 4

B. 6 ✓

C. 5

D. 10

Q6 Mathematics

Evaluate: $(-9) - (-60) \div (-10) + (-2) \times 7$

A. -28

B. -31

C. -32

D. -29 ✓

Q7 Mathematics

The population of a district is 374000, out of which 165000 are males. 21% of the population is literate. If 40% males are literate, then what percentage of females are literate?

A. 5%

B. 7%

C. 6% ✓

D. 8%

Q8 Mathematics

The LCM of the numbers 5.1 and 0.102 is:

A. 0.51

B. 0.051

C. 5.1 ✓

D. 51

Q9 Mathematics

In covering a distance of 60 km, Pranay takes 6 hours more than Aman. If Pranay doubles his speed, then he would take 9 hours less than Aman. Pranay's speed is:

A. 9 km/hr

B. 12 km/hr

C. 2 km/hr ✓

D. 11 km/hr



Q10 Mathematics

Which of the following numbers divides 54,10,96,943?

A. 97



B. 107

C. 87

D. 103

Q11 Mathematics

A man riding on a bicycle at a speed of 24 km/hr crosses a bridge in 3.1 minutes. Find the length of the bridge.

A. 1.24 km



B. 1.64 km

C. 0.34 km

D. 0.62 km

Q12 Mathematics

An open metallic box is 60 cm long, 40 cm wide and 23 cm high. Its thickness is 3 cm. If 1 cm^3 of metal used in the box weighs 0.5 grams, find the weight (in kg) of the box.

A. 9.24



B. 10.42

C. 10.82

D. 8.46

Q13 Mathematics

The product of two consecutive natural numbers is 600. The greater of the two numbers is:

A. 16

B. 31

C. 25



D. 40

Q14 Mathematics

A, B and C started a business investing ₹1,340, ₹1,100 and ₹2,440, respectively. If B's share in the profit earned by them is ₹814, what is the difference in the profit (in ₹) earned by A and C?

A. ₹815

B. ₹814



C. ₹816

D. ₹811

Q15 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 4 months.

A. ₹16

B. ₹32

C. ₹36

D. ₹192

**Q16 Mathematics**

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 29^\circ$. E is a point on BC such that $\angle CAE = 25^\circ$. What is the measure of $\angle AEB$?

A. 100°

B. 86°



C. 90°

D. 93°

Q17 Mathematics

On a marked price of ₹5,000, a dealer offers successive discounts of 10% and 5%. Find the selling price.

A. ₹4,250

B. ₹4,275



C. ₹4,280

D. ₹4,320

Q18 Mathematics

Find the mean proportional of 490 and 10.

A. 67

B. 71

C. 68

D. 70

**Q19 Mathematics**

Amit bought some erasers at the rate of ₹150 a dozen. He sold them for ₹42 each. His profit percentage is ____%.

A. 234

B. 240

C. 236



D. 238



Q20 Mathematics

The average weight (in kg) of a family of five members, whose weights are 40 kg, 49 kg, 56 kg, 74 kg, and 39 kg, is:

A. 52.6

B. 51.6



C. 53.6

D. 50.6

Q21 Mathematics

The average price of three items of furniture is ₹ 16860. If their prices are in the ratio 3:5:7, the price of the costliest item (in ₹) is

A. 5620

B. 23604



C. 10116

D. 7868

Q22 Mathematics

The sum of two numbers is 84 and their L.C.M. is 120. What are the two numbers?

A. 58, 26

B. 53, 31

C. 65, 19

D. 60, 24

**Q23 Mathematics**

The selling price of 50 books is equal to the cost price of 16 books. Find the loss or gain percentage.

A. $\frac{100}{34}\%$ loss

B. $\frac{100}{34}\%$ gain

C. 68% loss



D. 68% gain

Q24 Mathematics

A product is marked at ₹7,500. Two successive discounts of 8% and 5% are offered. What is the final selling price?

A. ₹4,525

B. ₹5,655

C. ₹5,125

D. ₹6,555



Q25 Mathematics

The value of $\frac{5}{2} + \left(\frac{1}{1 + \frac{3}{8}} \right) - \frac{5}{3}$ is

A. $\frac{95}{69}$

B. $\frac{103}{66}$ ✓

C. $\frac{106}{59}$

D. $\frac{113}{72}$

Q26 Mathematics

By how much is 65% of 55 greater than $\frac{2}{5}$ of 15?

A. 23.75

B. 27.75

C. 29.75 ✓

D. 26.75

Q27 Mathematics

Pipe A can fill a tank in 20 hours, pipe B can fill the same tank in 25 hours and pipe C can fill the same tank in 10 hours. The time taken by them to fill the same tank if they operate together is::

A. $11\frac{5}{19}$ hours

B. $5\frac{5}{19}$ hours ✓

C. $3\frac{5}{19}$ hours

D. $2\frac{5}{19}$ hours



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Q28 Mathematics

Simplify: $3\left(\left(\frac{4}{3}\right)x^2 - 24x + 18\right) - 4(x^2 + 7x - 18)$

A. $100x + 126$

B. $-100x - 126$

C. $-100x + 126$ ✓

D. $100x - 126$

Q29 Mathematics

The simple interest on a certain sum for $4\frac{1}{5}$ years at the rate of 2.5% per annum is ₹8,400.

What will be the amount payable on the same sum at the rate of 8.1% per annum simple interest in $10\frac{1}{4}$ years?

A. ₹1,46,420 ✓

B. ₹1,46,429

C. ₹1,46,404

D. ₹1,46,416

Q30 Mathematics

If $\cot^2\theta = \frac{1}{(1-a^2)}$, $|a| < 1$, and θ is an acute angle, then find the value of $(\sec\theta + \operatorname{cosec}\theta \tan^3\theta)$.

A. $(4 - a^2)$

B. $(a^2 - 8)$

C. $(2 - a^2)^{\frac{3}{2}}$ ✓

D. $(2 - a^{\frac{3}{2}})$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Given that $95^{0.53} = x$, $95^{0.83} = y$ and $x^z = y^8$, then the value of z is close to:

- A. 11.75
B. 15.92
C. 12.53
D. 13.4



Q2 Mathematics

The sides of a right-angled triangle are x cm, $(x + 2)$ cm and $(x + 4)$ cm, respectively. If the area of the triangle is 24 cm^2 , find its perimeter (in cm).

- A. 26
B. 30
C. 28
D. 24



Q3 Mathematics

The average runs scored by a batsman in 23 matches is 43. In the next 10 matches, the batsman scored an average of 13 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

- A. 34.91
B. 32.91
C. 35.91
D. 33.91



Q4 Mathematics

If 2 times a mother's present age is 25 years more than 5 times her daughter's present age, and 3 times the daughter's present age is 9 years less than the mother's present age, then what is the difference (in years) between the ages of the mother and the daughter?

- A. 25
B. 23
C. 28
D. 20



Q5 Mathematics

M and N started a business. M invested ₹31,000 more than N for 2 months, while N invested for 7 months. M's share is ₹139 more than that of N, out of a total profit of ₹5,977. Find the capital contributed by M.

- A. ₹42,529
B. ₹42,441
C. ₹42,561
D. ₹42,625



Q6 Mathematics

On the eve of new year, a branded washing machine is sold for ₹34,340 after allowing 15% discount. What is its marked price (in ₹)?

- A. 44,500
B. 45,400
C. 40,400
D. 44,000



Q7 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 6 months.

- A. ₹44
B. ₹24
C. ₹48
D. ₹288



Q8 Mathematics

A number when increased by 100% gives 2760. The number is:

- A. 4140
B. 2760
C. 690
D. 1380



Q9 Mathematics

Find the surface area of a sphere whose diameter is equal to 64 cm.

- A. $4044\pi \text{ cm}^2$
- B. $4096\pi \text{ cm}^2$ ✓
- C. $4171\pi \text{ cm}^2$
- D. $3994\pi \text{ cm}^2$

Q10 Mathematics

The population of a district is 342000, out of which 228000 are males. 44% of the population is literate. If 59% males are literate, then what percentage of females are literate?

- A. 12%
- B. 16%
- C. 14% ✓
- D. 17%

Q11 Mathematics

The marks scored by 10 students are given below.

20, 20, 20, 19, 14, 18, 20, 12, 11, 17

The mode of the data is:

- A. 18
- B. 20 ✓
- C. 14
- D. 19

Q12 Mathematics

The LCM of the numbers 2.6 and 0.084 is:

- A. 0.546
- B. 5.46
- C. 546
- D. 54.6 ✓

Q13 Mathematics

The sum of two numbers is 52 and their LCM is 651. The two numbers are:

- A. 24, 28
- B. 36, 16
- C. 31, 21 ✓
- D. 29, 23

Q14 Mathematics

Which of the following numbers divides 488309139?

- A. 10
- B. 9 ✓
- C. 11
- D. 13

Q15 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 6.75% per annum rate of interest deposited on 24 February 2024 and withdrawn on 25 April 2024.

- A. ₹45 ✓
- B. ₹43
- C. ₹46
- D. ₹44

Q16 Mathematics

Train A leaves station M at 7:55 a.m. and reaches station N at 2:55 p.m. on the same day. Train B leaves station N at 9:55 a.m. and reaches station M at 2:55 p.m. on the same day. Find the time when Trains A and B meet.

- A. 4:08 p.m.
- B. 1:49 a.m.
- C. 4:48 p.m.
- D. 12:00 p.m. ✓

Q17 Mathematics

A man goes to Indore from Bhopal at a speed of 9 km/hr and returns to Bhopal at speed of 18 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

- A. 9
- B. 6
- C. 12 ✓
- D. 15

Q18 Mathematics

If 79% of first number is equal to four-ninths of second number, what is the ratio of first number to the second number?

- A. 404 : 716
- B. 400 : 711 ✓
- C. 396 : 709
- D. 399 : 706



Q19 Mathematics

The cost of 9 pens and 14 pencils is ₹95. If the cost of a pen decreases by ₹3 and the cost of a pencil increases by ₹7, then the cost of 9 pens and 3 pencils is ₹78. What is the original cost of 17 pens and 13 pencils?

A. ₹169

B. ₹166 

C. ₹161

D. ₹162

Q20 Mathematics

A tradesman marks his goods at 24% above the cost price. He allows his customer a discount of 13% on the marked price. Find his profit percentage.

A. 5.76%

B. 8.55%

C. 6.48%

D. 7.88% **Q22 Mathematics**

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 70^\circ$ and $\angle BAC = 62^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 75

B. 84 

C. 82

D. 92

Q23 Mathematics

Pallavi bought a toy for ₹670, decorated it at a cost of ₹10 and sold the toy for ₹290. Find the loss or profit percentage.

A. $\frac{975}{17}\%$ profitB. $\frac{975}{17}\%$ loss 

C. 975 % loss

D. $\frac{985}{17}\%$ profit**Q21 Mathematics**

Amit, Neha, and Kiran invest ₹1,220, ₹1,370, and ₹1,110, respectively, to start a business. If the profit at the end of the year is ₹1,160, then what is the share of Kiran in the profit?

A. ₹348 

B. ₹351

C. ₹345

D. ₹347



Q24 Mathematics

The value of $3^2 + \sqrt{4^2} - 5\sqrt{81} - 4$ is

A. -36



B. -32

C. -41

D. -42

Q25 Mathematics

Simplify the following.

$$3\left(\left(\frac{4}{3}\right)x^2 - 21x + 12\right) - 4(x^2 + 4x - 14)$$

A. $-79x + 92$ B. $-79x - 92$ C. $79x + 92$ D. $79x - 92$ **Q26** Mathematics

Simplify the following:

$$\frac{1 + \cot^2\theta}{1 + \tan^2\theta}$$

A. $\tan^2\theta - 1$ B. $\operatorname{cosec}^2\theta - 1$ C. $\cot^2\theta - 1$ D. $\sec^2\theta - 1$ **Q27** Mathematics

Pipe A can fill a tank in 16 hours, pipe B can fill the same tank in 21 hours and pipe C can fill the same tank in 11 hours. The time taken by them to fill the same tank if they operate together is::

A. $2\frac{724}{743}$ hoursB. $4\frac{724}{743}$ hoursC. $1\frac{724}{743}$ hoursD. $5\frac{724}{743}$ hours

Q28 Mathematics

Pipe P can fill $\frac{2}{9}$ part of a tank in 20 hours, and pipe Q can fill $\frac{5}{9}$ part of the same tank in 10 hours.

Both P and Q were kept open for 3 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 8 hours. Pipes P, Q and R together can fill the empty tank in:

- A. 42 hours
- B. 29 hours
- C. 24 hours
- D. 41 hours



Q29 Mathematics

The value of $\frac{5}{4} + \left(\frac{1}{1 + \frac{5}{7}} \right) - \frac{3}{5}$ is

- A. $\frac{43}{34}$
- B. $\frac{37}{30}$
- C. $\frac{46}{33}$
- D. $\frac{36}{23}$



Q30 Mathematics

The selling price of 40 books is equal to the cost price of 30 books. Find the loss or gain percentage.

- A. $\frac{100}{10}\%$ loss
- B. 25% loss
- C. $\frac{100}{10}\%$ gain
- D. 25% gain



Mathematics

30 Questions • Answer Key

Q1 Mathematics

The product of two positive numbers is 3645. If the first number is five times the second number, then the sum of the two numbers is:

A. 172

B. 162



C. 173

D. 164

Q2 Mathematics

Volumes of three cubes made of solid metal are 789 cm^3 , 865 cm^3 and 1721 cm^3 , respectively. After melting all the three, a solid cube was made of them. Find the length of the edge of the new cube.

A. 12 cm

B. 25 cm

C. 14 cm

D. 15 cm



Q3 Mathematics

The average of first 147 odd natural numbers, is:

A. 147



B. 147.5

C. 146.5

D. 148

Q4 Mathematics

A shopkeeper offers the following discount scheme to his customers for the purchase of articles in his shop.

'Buy 20 and get 5 free'

Find the discount percentage offered.

A. 25%

B. 32%

C. 30%

D. 20%



Q5 Mathematics

Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 4.5 years at 16% per annum rate of interest.

A. 268

B. 338

C. 288



D. 388

Q6 Mathematics

A man driving a car at a speed of 48 km/hr crosses a bridge in 3.8 minutes. Find the length of the bridge.

A. 3.04 km



B. 2.46 km

C. 2.54 km

D. 2.36 km

Q7 Mathematics

A sum of money triples itself at a certain rate of compound interest in 17 years. In how many years will it amount to 81 times of itself?

A. 59 years

B. 58 years

C. 64 years

D. 68 years



Q8 Mathematics

The income of Raman is ₹80,200. He saves 7.5% of his income. If his income increases by 34% and expenditure increases by 40%, then his savings will:

A. increase by ₹2,403

B. decrease by ₹2,406



C. increase by ₹2,404

D. decrease by ₹2,404



Q9 Mathematics

The sum of two numbers is 44 and their L.C.M. is 459. What are the two numbers?

A. 27, 17



B. 20, 24

C. 25, 19

D. 32, 12

Q10 Mathematics

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 74 kg and 38 kg is:

A. 51.4



B. 53.4

C. 50.4

D. 52.4

Q11 Mathematics

The number 481355 is divisible by which of the following?

A. 6

B. 3

C. 15

D. 5

**Q12 Mathematics**

A tradesman marks his goods at such a price that after allowing a discount of 30%, he still makes a profit of 10%. What is the marked price of an article (in ₹) whose cost price is ₹1,540?

A. 2,204

B. 2,240

C. 2,440

D. 2,420

**Q13 Mathematics**

Given that $81^{0.65} = x$, $81^{0.26} = y$ and $x^z = y^7$, then the value of z is close to:

A. 2.8



B. 4.27

C. 4.09

D. 1.32

Q14 Mathematics

Find the number of sides of a regular polygon, each of whose interior angles measures 162° .

A. 16

B. 18

C. 20



D. 22

Q15 Mathematics

Ishaan has to reach Kolkata which is 843 km away in 11 hours. His starting speed for 4 hours was 34 km/hr. For the next 180 km his speed was 30 km/hr. By what speed he must travel now so as to reach Kolkata in the decided time of 11 hours?

A. 528 km/hr

B. 523 km/hr

C. 527 km/hr



D. 530 km/hr

Q16 Mathematics

₹35,600 were divided among A, B and C, such that 8 times of A = 3 times of B = 6 times of C. Find the share of A.

A. ₹7,120



B. ₹7,294

C. ₹6,968

D. ₹7,194

Q17 Mathematics

If 4 times a son's age is added to his father's age, the sum is 100 years. If 2.5 times the father's age is added to the son's age, the sum is 97 years. What is the father's age (in years)?

A. 32



B. 30

C. 36

D. 31

Q18 Mathematics

4 men can complete a piece of work in 12 days, while 8 women can do it in 15 days. In how many days can 3 women and 2 men complete this work?

A. 19 days

B. 11 days

C. 14 days

D. 15 days



Q19 Mathematics

The LCM of the numbers 2.8 and 0.217 is:

- A. 8.68
- B. 868
- C. 86.8
- D. 0.868

Q20 Mathematics

I bought two shirts for ₹1,200. I sold the first one at a loss of 8% and the second at a gain of 24%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first shirt.

- A. 920
- B. 924
- C. 900
- D. 884

Q21 Mathematics

Nikhil, Nidhi and Tejas invested ₹1,200, ₹1,070 and ₹1,310, respectively to start a business. If the profit at the end of the year is ₹1,790, what is Tejas's share of the profit?

- A. ₹655
- B. ₹658
- C. ₹657
- D. ₹654

Q22 Mathematics

Find the mean proportional of 324 and 16.

- A. 72
- B. 74
- C. 75
- D. 69

Q23 Mathematics

A can do a work in 9 days and B can do the same work in 19 days. If they work on it together for 6 days, then what fraction of the work is left?

- A. $\frac{1}{57}$
- B. $\frac{4}{57}$
- C. $\frac{7}{57}$
- D. $\frac{10}{57}$

Q24 Mathematics

Find the value of x satisfying: $5(5x^2 - 5) - 5(5x^2 + 7x - 2) = 14$

- A. $-\frac{39}{35}$
- B. $-\frac{24}{35}$
- C. $-\frac{29}{35}$
- D. $-\frac{38}{35}$



Q25 Mathematics

The value of $8^2 + \sqrt{3^2} - 2\sqrt{36} - 11$ is

A. 44



B. 38

C. 50

D. 51

Q26 Mathematics

Find the volume of a sphere with diameter 12 cm.

A. $576\pi \text{ cm}^3$

B. $288\pi \text{ cm}^3$



C. $256\pi \text{ cm}^3$

D. $905\pi \text{ cm}^3$

Q27 Mathematics

If $X = \frac{(1 + \cos\theta)(2 - 2\cos\theta)}{(2 + 2\sin\theta)(1 - \sin\theta)}$, then the value of $X + \frac{1}{X} + 2$ is:

A. $\sec^2\theta \sin^2\theta$

B. $\cos^2\theta + \sec^2\theta$

C. $\cot^2\theta$

D. $\operatorname{cosec}^2\theta \sec^2\theta$



Q28 Mathematics

The value of $\frac{5}{3} + \left(\frac{1}{1 + \frac{2}{7}} \right) - \frac{2}{3}$ is

A. $\frac{26}{17}$

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

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

D. $\frac{16}{9}$



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Q29 Mathematics

The selling price of 20 books is equal to the cost price of 36 books. Find the loss or gain percentage.

A. $\frac{100}{16}\%$ gain

B. 80% loss

C. 80% gain



D. $\frac{100}{16}\%$ loss

Q30 Mathematics

By how much is 65% of 65 greater than $\frac{1}{5}$ of 55?

A. 25.25

B. 28.25

C. 31.25



D. 29.25



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Zeeshan travels 252 km at 63 km/hr, the next 150 km at 30 km/hr and the next 680 km at 68 km/hr. What is his average speed (in km/hr, rounded off to two decimal places) for the whole journey?

A. 56.95



B. 62.09

C. 54.95

D. 58.05

Q2 Mathematics

Find the value of: $[480 \div \{12 + 2 \times (4 - 9)\}]$.

A. 240



B. 242

C. 241

D. 243

Q3 Mathematics

The LCM of the numbers 15.4 and 0.006 is:

A. 462

B. 46.2



C. 0.462

D. 4.62

Q4 Mathematics

The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 76 kg and 38 kg is:

A. 52.8

B. 50.8

C. 53.8

D. 51.8



Q5 Mathematics

If the third proportional of 9 and 30 be x, then what is the value of x?

A. 100



B. 102

C. 99

D. 101

Q6 Mathematics

The product of two positive numbers is 80. If the first number is five times of the second number, then the sum of the two numbers is:

A. 27

B. 29

C. 33

D. 24



Q7 Mathematics

One side of a right-angled triangle is twice the other and the hypotenuse is 15 cm. Find the area (in cm^2) of the triangle.

A. 80

B. 60

C. 45



D. 70

Q8 Mathematics

M and N started a business. M invested ₹50,000 more than N for 3 months, while N invested for 7 months. M's share is ₹328 more than that of N, out of a total profit of ₹4,920. Find the capital contributed by M.

A. ₹1,00,000

B. ₹1,20,000

C. ₹80,000



D. ₹60,000

Q9 Mathematics

The current population of a town is 12,800. It increases by 25% and 35% in two successive years but decreases by 5% in the third year. What is the population of the town at the end of the third year?

A. 20,520



B. 20,517

C. 20,525

D. 20,515



Q10 Mathematics

An amount of ₹936 is divided among three persons in the ratio of 2 : 4 : 3. The difference between the largest and the smallest shares (in ₹) in the distribution is:

A. 208



B. 235

C. 151

D. 132

Q11 Mathematics

Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 3.5 years at 16% per annum rate of interest.

A. 324

B. 224



C. 204

D. 274

Q12 Mathematics

50 glass bottles were purchased for ₹50, and 28 glass bottles broke in transit. The trader sold the remaining glass bottles at ₹5.80 each. Find his profit.

A. ₹68.50

B. ₹77.60



C. ₹76.60

D. ₹75.30

Q13 Mathematics

The average runs scored by a batsman in 23 matches is 42. In the next 10 matches, the batsman scored an average of 13 runs. Find his average runs scored (rounded off to two decimals) in all the 33 matches.

A. 32.21

B. 34.21

C. 35.21

D. 33.21

**Q14 Mathematics**

Evaluate: $(-9) - (-60) \div (-10) + (-4) \times 6$

A. -41

B. -39



C. -38

D. -42

Q15 Mathematics

What is the difference between a single discount of 48% on ₹1,450 and two successive discounts of 10% and 40% on the same amount?

A. ₹31

B. ₹29



C. ₹28

D. ₹32

Q16 Mathematics

A supplier offers a trade discount of 20% on a product priced at ₹5,000. Additionally, there is a scheme discount of 10% on the already discounted price. What is the final price of the product after both discounts?

A. ₹3,600



B. ₹3,800

C. ₹4,000

D. ₹4,500

Q17 Mathematics

The HCF and the LCM of two numbers are 11 and 330, respectively. If one of the numbers is 66, find the other one.

A. 66

B. 44

C. 55



D. 121

Q18 Mathematics

Shahid and Mira have to travel from Delhi to Kanpur in their respective cars. Shahid is driving at 42 km/hr while Mira is driving at 98 km/hr. Find the time taken by Mira to reach Kanpur if Shahid takes 14 hours.

A. 6 hours



B. 12 hours

C. 5 hours

D. 2 hours

Q19 Mathematics

3 years ago, the age of a father was 18 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 13

B. 17

C. 15



D. 11



Q20 Mathematics

The distance between two electric poles of length 25 metres and 36 metres is x metres. If the two angles of elevation of their respective top from the bottom of the other are complementary to each other, then the value of x (in metres) is:

A. 26

B. 28

C. 30

D. 32

Q21 Mathematics

The difference between an interior angle and exterior angle of a regular polygon is 120° . Find the number of sides of the polygon.

A. 12

B. 14

C. 15

D. 10

Q22 Mathematics

By how much is 65% of 75 greater than $\frac{3}{5}$ of 15?

A. 39.75

B. 37.75

C. 33.75

D. 36.75

Q23 Mathematics

A trader claims to sell flour at a profit of 58%, but also dishonestly uses a weight which is 8% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 74%

B. 76%

C. 72%

D. 71%

Q24 Mathematics

A can lay railway track between two given stations in 19 days and B can do the same job in 11 days. With the help of C, they did the job in 3 days only. Then, C alone can do the job in

A. $3\frac{32}{119}$ daysB. $8\frac{32}{119}$ daysC. $6\frac{32}{119}$ daysD. $5\frac{32}{119}$ days

Q25 Mathematics

A sum of ₹400 amounts to ₹529 in 2 years at a certain rate of interest per annum, compounded annually. The rate of interest per annum is:

A. 11%

B. 16%

C. 18%

D. 15% **Q26 Mathematics**

A hollow spherical shell is made of a metal of density 40 g/cm^3 . Its internal and external radii are 1 cm and 4 cm, respectively. What is the mass (in kg) of the shell?

(Take $\pi = \frac{22}{7}$.)

A. 10.56 

B. 11.65

C. 12.35

D. 7.56

Q27 Mathematics

Simplify: $4\left(\left(\frac{3}{4}\right)x^2 - 25x + 17\right) - 3(x^2 + 8x - 13)$

A. $124x - 107$ B. $124x + 107$ C. $-124x + 107$ D. $-124x - 107$ **Q28 Mathematics**

The value of $\frac{5}{3} + \left(\frac{1}{1 + \frac{5}{6}}\right) - \frac{5}{3}$ is

A. $\frac{5}{18}$ B. $\frac{6}{11}$ C. $\frac{7}{13}$ D. $\frac{11}{18}$ 

Q29 Mathematics

Pipe P can fill $\frac{3}{8}$ part of a tank in 21 hours and pipe Q can fill $\frac{2}{7}$ part of the same tank in 16 hours.

Both P and Q were kept open for 2 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 3 hours. Pipes P, Q and R together can fill the empty tank in:

A. 89 hours

B. 84 hours



C. 67 hours

D. 94 hours

Q30 Mathematics

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

A. $\frac{52}{55}$



B. $\frac{57}{49}$

C. $\frac{43}{53}$

D. $\frac{51}{61}$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Sapna invested ₹22,500 on simple interest, partly at 7% per annum and partly at 5% per annum. If she earns equal interests from the two investments after 3 years, then find the sum invested at 7% per annum (in ₹).

A. 9,374

B. 9,373

C. 9,375



D. 9,376

Q2 Mathematics

The average weight of Ketan, Tushar and Salil is 46 kg. If the average weight of Ketan and Tushar is 36 kg and that of Tushar and Salil is 44 kg, then the weight of Tushar (in kg) is:

A. 42

B. 22



C. 32

D. 37

Q3 Mathematics

What smallest number should be added to 15335 so that the sum is completely divisible by 79?

A. 65

B. 71

C. 68

D. 70



Q4 Mathematics

Find the value of $24^{-10} \div 24^{16} \times 24^{-7}$.

A. 24-31

B. 24-43

C. 24-38

D. 24-33



Q5 Mathematics

Kushal and Brijesh together invested ₹75,100 in a business. At the end of the year, out of a total profit of ₹16,000, Brijesh's share was ₹4,400. What was the difference between their investments?

A. ₹33,795



B. ₹35,768

C. ₹34,043

D. ₹34,385

Q6 Mathematics

Find the mean proportional between 26 and 104.

A. 51

B. 52



C. 49

D. 53

Q7 Mathematics

Train A leaves station M at 6:30 AM and reaches station N at 3:30 PM on the same day. Train B leaves station N at 8:30 AM and reaches station M at 1:30 PM on the same day. Find the time when trains A and B meet.

A. 11:30 AM

B. 11:00 AM



C. 10:50 AM

D. 12:00 PM

Q8 Mathematics

A shopkeeper lists the price of a fan at 50% above its cost price and offers a 30% discount on its list price. If he earns a profit of ₹86, then what is the list price (in ₹) of the fan?

A. 2,386

B. 2,580



C. 2,825

D. 2,444



Q9 Mathematics

I bought two toy guns for ₹1,200. I sold the first one at a loss of 9% and the second at a gain of 16%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first toy gun.

A. 768



B. 792

C. 788

D. 752

Q10 Mathematics

A company offers a scheme discount of 'buy 5 get 3 free' offer on shirts. Find the discount percentage.

A. 30%

B. 39.3%

C. 37.5%



D. 36.3%

Q11 Mathematics

If the shape of a water pipe is a rectangle with dimensions 5 m and 3 m and if water runs out of it at the speed of 36 km/hr, then what is the volume (in m^3) of the water that passed through the pipe in 12 minutes?

A. 54000

B. 5400

C. 216000

D. 108000

**Q12 Mathematics**

The H.C.F. and the L.C.M. of two numbers are 3 and 276 respectively. If one of the numbers is 69, find the other one.

A. 12



B. 100

C. 35

D. 110

Q13 Mathematics

If the 6-digit number $N46M66$ is divisible by 11, then which of the options below can give a possible correct relation between M and N ?

A. $M = N$

B. $M + N = -2$

C. $M - N = 2$



D. $M - N = 1$

Q14 Mathematics

The product of two consecutive natural numbers is 240. The greater of the two numbers is:

A. 35

B. 16



C. 23

D. 19

Q15 Mathematics

Mahita is painting the four walls of her study room, which is shaped like a cube with a side length of 18.5 feet. What is the total area she needs to paint (in square feet)?

A. 1396

B. 1358

C. 1369



D. 1385

Q16 Mathematics

A bus travelling at 99 km/hr completes a journey in 20 hours. What should its speed be to cover the same distance in 12 hours?

A. 168 km/hr

B. 165 km/hr



C. 156 km/hr

D. 159 km/hr

Q17 Mathematics

The average weight of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 75 kg and 36 kg is:

A. 50.2 kg

B. 53.2 kg

C. 52.2 kg

D. 51.2 kg

**Q18 Mathematics**

8 years ago, the age of a father was 21 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 11

B. 13



C. 8

D. 17



Q19 Mathematics

Successive discounts of 5% and 40% are equivalent to a single discount of:

- A. 42%
- B. 43% ✓
- C. 41%
- D. 45%

Q20 Mathematics

Ravi started a business by investing ₹50,000. After six months, Raju joined him and invested an amount of ₹1,00,000. In one year since Ravi invested, they earned a profit of ₹63,000. What is Raju's share of the profit?

- A. ₹31,500 ✓
- B. ₹31,000
- C. ₹32,500
- D. ₹32,000

Q21 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 72^\circ$. E is a point on BC such that $\angle CAE = 56^\circ$. What is the measure of $\angle AEB$?

- A. 74° ✓
- B. 65°
- C. 69°
- D. 71°

Q22 Mathematics

The income of Raman is ₹44,200. He saves 31% of his income. If his income increases by 22% and expenditure increases by 50%, then his savings will:

- A. decrease by ₹5,524
- B. increase by ₹5,530
- C. decrease by ₹5,525 ✓
- D. increase by ₹5,521

Q23 Mathematics

The LCM of the numbers 10.8 and 0.06 is:

- A. 10.8 ✓
- B. 108
- C. 1.08
- D. 0.108

Q24 Mathematics

By how much is 65% of 55 greater than $\frac{2}{5}$ of 25?

- A. 25.75 ✓
- B. 19.75
- C. 23.75
- D. 22.75

Q25 Mathematics

The simple interest on a certain sum for $7\frac{2}{3}$ years at the rate of 5.4% per annum is ₹4,347.

What will be the amount payable on the same sum at the rate of 7.5% per annum simple interest in $4\frac{4}{5}$ years?

- A. ₹14,282
- B. ₹14,272
- C. ₹14,280 ✓
- D. ₹14,273



Q26 Mathematics

Simplify the following.

$$3\left(\left(\frac{6}{3}\right)x^2 - 21x + 18\right) - 6(x^2 + 5x - 18)$$

A. $-93x + 162$



B. $-93x - 162$

C. $93x - 162$

D. $93x + 162$

Q27 Mathematics

Two pipes can fill a cistern, individually, in 40 minutes and 14 minutes, respectively. There is a pipe located at the bottom of the cistern to empty it. If all the three pipes are opened simultaneously, then the empty cistern gets filled in 20 minutes. How long will the pipe at the bottom of the tank take to empty the completely filled cistern if no other pipe is then open?

A. $20\frac{7}{13}$ minutes

B. $19\frac{7}{13}$ minutes

C. $21\frac{7}{13}$ minutes



D. $22\frac{7}{13}$ minutes

Q28 Mathematics

A can lay railway track between two given stations in 20 days and B can do the same job in 16 days. With the help of C, they did the job in 3 days only. Then, C alone can do the job in

A. $11\frac{28}{53}$ days

B. $14\frac{28}{53}$ days

C. $12\frac{28}{53}$ days

D. $4\frac{28}{53}$ days

**Q29 Mathematics**

Simplify:

$$\sqrt{289} + \sqrt{0.04} - \sqrt{5.76}$$

A. 3.07

B. 11.65

C. 1.78

D. 14.8



Find the value of $\frac{(\sec^4 A - \sec^2 A)}{(\cot^2 A + \cot^4 A)} \times \frac{(\operatorname{cosec}^4 A - \operatorname{cosec}^2 A)}{(\tan^2 A + \tan^4 A)} + \cot^2 A$.

A. $\cot^2 A$

B. $\operatorname{cosec}^2 A$



C. 1

D. 0



Mathematics

30 Questions · Answer Key

Q1 Mathematics

The product of two consecutive natural numbers is 90. The greater of the two numbers is:

A. 11

B. 10



C. 6

D. 21

Q2 Mathematics

A man makes a monthly payment equal to 20% of his monthly salary towards debt repayment. He spends 25% of the remaining salary and saves ₹780. His monthly salary (in ₹) is:

A. 1,300



B. 1,366

C. 1,388

D. 1,383

Q3 Mathematics

A man goes to Indore from Bhopal at a speed of 20 km/hr and returns to Bhopal at speed of 30 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

A. 20

B. 28

C. 24



D. 29

Q4 Mathematics

The number of prime numbers lying between 317 and 322, both included, is:

A. 1



B. 3

C. 4

D. 2

Q5 Mathematics

The area of one side of a rectangular box is 45 cm^2 , and the area of another adjacent side is 24 cm^2 . If the area of the top surface (third side) is 30 cm^2 , find the volume of the box.

A. 60 cm^3 B. 540 cm^3 C. 180 cm^3 D. 270 cm^3

Q6 Mathematics

The ratio of an interior angle to its corresponding exterior angle in a regular polygon is 3 : 2. Determine the number of sides of the polygon.

A. 6

B. 8

C. 5



D. 7

Q7 Mathematics

₹32,100 were divided among A, B and C, such that 2 times of A = 7 times of B = 4 times of C. Find the share of A.

A. ₹17,815

B. ₹17,976



C. ₹18,091

D. ₹17,847

Q8 Mathematics

A kite is flying at the height of 353.55 m above the ground. It is attached to a string inclined at an angle of 45° to the horizontal. What is the approximate length of the string?

A. 250 m

B. 300 m

C. 375 m

D. 500 m



Q9 Mathematics

Evaluate: $16 + 12 \div 6 - 2 \times 3$

A. 11

B. 12



C. 14

D. 15

Q10 Mathematics

Which of the following ratios is the greatest?

A. 22 : 51

B. 40 : 90

C. 48 : 55



D. 30 : 53

Q11 Mathematics

What is the median of the following data?

49, 96, 59, 54, 97, 30, 44, 46, 36, 55, 23

A. 50

B. 49.5

C. 48.5

D. 49

**Q12 Mathematics**

Ashok bought some pencils at the rate of ₹180 a dozen. He sold them for ₹16 each. His profit percentage is ____%.

A. 6.67



B. 10.67

C. 4.67

D. 8.67

Q13 Mathematics

P, Q and R invest sum in the ratio of 2 : 22 : 70, respectively. If they earned a total profit of ₹4,700 at the end of the year, then what is the difference between share of Q and R?

A. ₹2,430

B. ₹2,306

C. ₹2,447

D. ₹2,400

**Q14 Mathematics**

Eight times the present age of P exceeds the present age of Q by 46 years. After 10 years, three times Q's age will be 12 years less than eight times P's age at that time. What is the present age (in years) of Q?

A. 49

B. 43

C. 37

D. 42

**Q15 Mathematics**

A number when increased by 100% gives 2750. The number is:

A. 1375



B. 2750

C. 4125

D. 687.5

Q16 Mathematics

A shopkeeper lists the price of a fan at 34% above its cost price and offers a 25% discount on its list price. If he earns a profit of ₹177, then what is the list price (in ₹) of the fan?

A. 47,209

B. 47,148

C. 47,300

D. 47,436

**Q17 Mathematics**

In covering a distance of 198 km, Amit takes 4 hours more than Vinay. If Amit doubles his speed, then he would take 5 hours less than Vinay. Amit's speed is:

A. 11 km/hr



B. 10 km/hr

C. 12 km/hr

D. 20 km/hr

Q18 Mathematics

The average of first 151 odd natural numbers, is:

A. 151.5

B. 151



C. 150.5

D. 152



Q19 Mathematics

Sapna invested ₹22,800 on simple interest, partly at 6% per annum and partly at 4% per annum. If she earns equal interests from the two investments after 8 years, then find the sum invested at 6% per annum (in ₹).

A. 9,117

B. 9,122

C. 9,120



D. 9,123

Q20 Mathematics

A shopkeeper marks a mobile phone for ₹15,000 but allows a discount of 10%. What amount does the customer actually pay?

A. ₹13,800

B. ₹14,000

C. ₹13,500



D. ₹14,500

Q21 Mathematics

Find the surface area of the cuboid with dimensions 3 cm, 5 cm and 8 cm.

A. 158 square cm.



B. 60 square cm.

C. 120 square cm.

D. 79 square cm.

Q22 Mathematics

The marked price of an article is ₹2,500. A shopkeeper gives three successive discounts of 25%, 20% and K%, and sells the article at ₹1,380. Find the value of K.

A. 7

B. 8



C. 6.5

D. 7.6

Q23 Mathematics

A sum of money triples itself at a certain rate of compound interest in 15 years. In how many years will it amount to 81 times of itself?

A. 60 years



B. 61 years

C. 51 years

D. 56 years

Q24 Mathematics

The HCF and the LCM of two numbers are 29 and 174, respectively. If one of the numbers is 58, find the other one.

A. 87



B. 145

C. 116

D. 174

Q25 Mathematics

Find the HCF of 120, 144 and 168.

A. 36

B. 48

C. 12

D. 24



Q26 Mathematics

Find the value of x satisfying: $4(4x^2 - 5) - 4(4x^2 + 6x - 4) = 15$

A. $-\frac{11}{24}$

B. $-\frac{23}{24}$

C. $-\frac{19}{24}$ ✓

D. $-\frac{17}{24}$

Q27 Mathematics

The value of $\frac{3}{4} + \left(\frac{1}{1 + \frac{5}{9}} \right) - \frac{2}{3}$ is

A. $\frac{60}{83}$

B. $\frac{63}{92}$

C. $\frac{61}{84}$ ✓

D. $\frac{57}{77}$

Q28 Mathematics

Pipe P can fill $\frac{2}{9}$ part of a tank in 28 hours, and pipe Q can fill $\frac{2}{7}$ part of the same tank in 12 hours.

Both P and Q were kept open for 6 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 8 hours. Pipes P, Q and R together can fill the empty tank in:

A. 137 hours

B. 117 hours

C. 126 hours ✓

D. 145 hours



Q29 Mathematics

Pipe A can fill a tank in 12 hours, pipe B can fill the same tank in 25 hours and pipe C can fill the same tank in 10 hours. The time taken by them to fill the same tank if they operate together is::

A. $12\frac{32}{67} \text{ hours}$

B. $4\frac{32}{67} \text{ hours}$ 

C. $13\frac{32}{67} \text{ hours}$

D. $9\frac{32}{67} \text{ hours}$

Q30 Mathematics

$$1 \times (5 \times (3^2)) \div 17 + 44 - 78$$

A. $-\frac{538}{17}$

B. $-\frac{534}{17}$

C. $-\frac{535}{17}$

D. $-\frac{533}{17}$ 



Mathematics

30 Questions • Answer Key

Q1 Mathematics

A number when increased by 80% gives 2880. The number is:

A. 1600



B. 800

C. 3200

D. 4800

Q2 Mathematics

Find the simple interest (in ₹) on ₹3,000 as a sum borrowed at 8% per year rate of interest for 6 years.

A. 1,400

B. 1,380

C. 1,440



D. 1,480

Q3 Mathematics

The number 938315 is divisible by which of the following?

A. 5



B. 9

C. 13

D. 12

Q4 Mathematics

David bought some sharpeners at the rate of ₹150 a dozen. He sold them for ₹43 each. His profit percentage is ____%.

A. 246

B. 248

C. 242

D. 244



Q5 Mathematics

Evaluate 24^2 .

A. 546

B. 626

C. 576



D. 536

Q6 Mathematics

Ishaan and Meghna have to travel from Delhi to Kanpur in their respective cars. Ishaan is driving at 147 km/hr while Meghna is driving at 42 km/hr. Find the time taken by Meghna to reach Kanpur if Ishaan takes 8 hours.

A. 19 hours

B. 33 hours

C. 32 hours

D. 28 hours



Q7 Mathematics

A piece of furniture is marked at 35% above its cost price. The shopkeeper gives a discount of 18% on the marked price and still earns ₹1,498 profit. What is the cost price of the furniture?

A. ₹12,000

B. ₹14,000



C. ₹15,000

D. ₹16,000

Q8 Mathematics

The LCM of the numbers 2.9 and 0.031 is:

A. 89.9



B. 0.899

C. 899

D. 8.99

Q9 Mathematics

The number of prime numbers lying between 397 and 407, both included, is:

A. 2



B. 6

C. 1

D. 4



Q10 Mathematics

The exterior angle of a regular polygon is one-seventh of its interior angle. How many sides does the polygon have?

- A. 24
- B. 18
- C. 12
- D. 16

**Q11 Mathematics**

The product of two positive numbers is 2645. If the first number is five times the second number, then the sum of the two numbers is:

- A. 138
- B. 146
- C. 155
- D. 149

**Q12 Mathematics**

Anshuman and Kunal together invested ₹70,400 in a business. At the end of the year, out of a total profit of ₹12,000, Kunal's share was ₹1,800. What was the difference between their investments?

- A. ₹49,280
- B. ₹47,329
- C. ₹48,614
- D. ₹50,554

**Q13 Mathematics**

Find the perimeter of a rectangular plot whose length is 68 m and area is 1904 m^2 .

- A. 165 m
- B. 192 m
- C. 186 m
- D. 174 m

**Q14 Mathematics**

Two times the present age of P exceeds the present age of Q by 15 years. After 9 years, twice Q's age will be 14 years less than twice P's age at that time. What is the present age (in years) of Q?

- A. 1
- B. 3
- C. 6
- D. 8

**Q15 Mathematics**

The average runs scored by a batsman in 23 matches is 43. In the next 10 matches, the batsman scored an average of 15 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

- A. 36.52
- B. 35.52
- C. 33.52
- D. 34.52

**Q16 Mathematics**

The sum of five numbers is 655. The average of the first two numbers is 80 and the third number is 105. Find the average of the remaining two numbers.

- A. 186
- B. 185
- C. 195
- D. 196

**Q17 Mathematics**

Simplify: $x(3x - 8) + 3(x^2 - 5) + 11$

- A. $-6 \times 2 - 8x - 4$
- B. $6 \times 2 - 8x - 4$
- C. $-6 \times 2 - 8x + 4$
- D. $6 \times 2 - 8x + 4$

**Q18 Mathematics**

In an election between two candidates 96 % of the registered voters cast their vote and 10 % of the votes polled were found invalid. Winning candidate got 57 % of the valid votes and won the election by a margin of 378 votes. How many voters were registered?

- A. 3122
- B. 3125
- C. 3123
- D. 21872



Q19 Mathematics

Aarohi has to reach Lucknow which is 907 km away in 14 hours. His starting speed for 5 hours was 32 km/hr. For the next 81 km his speed was 27 km/hr. By what speed he must travel now so as to reach Lucknow in the decided time of 14 hours?

A. 108 km/hr

B. 107 km/hr

C. 111 km/hr



D. 117 km/hr

Q20 Mathematics

An amount of ₹785 is divided among three persons in the ratio of 19 : 3 : 18. The difference between the largest and the smallest shares (in ₹) in the distribution is:

A. 315

B. 387

C. 369

D. 314

**Q21 Mathematics**

The H.C.F. and the L.C.M. of two numbers are 4 and 208 respectively. If one of the numbers is 52, find the other one.

A. 45

B. 16



C. 55

D. 8

Q22 Mathematics

Which of the following ratios is the greatest?

A. 46 : 51



B. 22 : 54

C. 48 : 90

D. 42 : 68

Q23 Mathematics

The marked price of a vehicle is ₹6,48,200. It is sold after allowing three successive discounts of 6%, 5% and 4%. Find its selling price. (Rounded off to nearest rupee)

A. ₹5,48,600

B. ₹5,60,789

C. ₹5,55,689



D. ₹5,70,650

Q24 Mathematics

The selling price of 25 books is equal to the cost price of 37 books. Find the loss or gain percentage.

A. 48% loss

B. $\frac{100}{12}\%$ gain

C. 48% gain



D. $\frac{100}{12}\%$ loss



Q25 Mathematics

Anjani can do a certain piece of work in 12 days. Anjani and Khushbu can together do the same work in 9 days, and Anjani, Khushbu and Sushmita can do the same work together in 8 days. In how many days can Anjani and Sushmita do the same work together?

A. $\frac{80}{8}$

B. $\frac{70}{7}$

C. $\frac{82}{9}$

D. $\frac{72}{7}$

**Q26 Mathematics**

The value of $\sqrt{400} + \sqrt{0.0121} - \sqrt{7.84}$ is _____.

A. 15.32

B. 17.31

C. 2.92

D. 4.24

**Q27 Mathematics**

The simple interest on a certain sum for $8\frac{1}{2}$ years at the rate of 3.2% per annum is ₹2,550.

What will be the amount payable on the same sum at the rate of 9.6% per annum simple interest in $5\frac{4}{5}$ years?

A. ₹14,609

B. ₹14,595

C. ₹14,583

D. ₹14,613

**Q28 Mathematics**

Find the circumference (in m) of the largest circle that can be drawn completely inside a rectangle with sides 196 m and 271 m.

(Take $\pi = \frac{22}{7}$.)

A. 608

B. 616

C. 613

D. 614



Q29 Mathematics

A can do a work in 11 days and B can do the same work in 24 days. If they work on it together for 2 days, then what fraction of the work is left?

A. $\frac{97}{132}$



B. $\frac{107}{132}$

C. $\frac{103}{132}$

D. $\frac{99}{132}$

Q30 Mathematics

If $6x = \operatorname{cosec} \theta$ and $\frac{6}{x} = \cot \theta$, then find the value of $18\left(x^2 - \frac{1}{x^2}\right)$.

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

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

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

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



Mathematics

30 Questions • Answer Key

Q1 Mathematics

The perimeter of an isosceles triangle is 184 cm. If the base is 44 cm, find the length of the equal sides (in cm).

A. 78

B. 72

C. 70



D. 75

Q2 Mathematics

Sapna invested ₹21,100 on simple interest, partly at the rate of 6% per annum and partly at the rate of 14% per annum. If she earns equal interests from the two investments after 3 years, then find the sum invested at the rate of 6% per annum (in ₹).

A. 14,768

B. 14,770



C. 14,767

D. 14,773

Q3 Mathematics

The average runs scored by a batsman in 23 matches is 40. In the next 10 matches, the batsman scored an average of 13 runs. Find his average runs scored (rounded off to two decimals) in all the 33 matches.

A. 32.82

B. 31.82



C. 33.82

D. 30.82

Q4 Mathematics

The cost of 7 pens and 17 pencils is ₹92. If the cost of a pen decreases by ₹0.50 and the cost of a pencil increases by ₹8, then the cost of 8 pens and 14 pencils is ₹186. What is the original cost of 9 pens and 6 pencils?

A. ₹39



B. ₹43

C. ₹41

D. ₹35

Q5 Mathematics

Praveen and Hemant start a business. Praveen invests ₹16,000 more than Hemant for 7 months and Hemant invests for 6 months. Praveen's share is ₹1,007 more than that of Hemant, out of a total profit of ₹7,049. Find the capital contributed by Praveen.

A. ₹1,28,112

B. ₹1,28,142

C. ₹1,28,000



D. ₹1,27,842

Q6 Mathematics

The H.C.F. and the L.C.M. of two numbers are 28 and 336, respectively. If one of the numbers is 112, find the other one.

A. 56

B. 140

C. 112

D. 84



Q7 Mathematics

The population of a district is 376000, out of which 230000 are males. 11% of the population is literate. If 11% males are literate, then what percentage of females are literate?

A. 11%



B. 9%

C. 8%

D. 12%

Q8 Mathematics

I bought two bicycles for ₹1,200. I sold the first one at a loss of 8% and the second at a gain of 17%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first bicycle.

A. 836

B. 840

C. 816



D. 800



Q9 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹2,508, and the rate of interest is 20% per annum compounded annually, then the sum is:

A. ₹10,005

B. ₹9,695

C. ₹10,315

D. ₹10,450

**Q10 Mathematics**

Simplify: $x(3x - 9) + 3(x^2 - 2) + 14$

A. $-6 \times 2 - 9x + 8$

B. $-6 \times 2 - 9x - 8$

C. $6 \times 2 - 9x - 8$

D. $6 \times 2 - 9x + 8$

**Q11 Mathematics**

The number 578289151 is divisible by which of the following?

A. 11



B. 4

C. 6

D. 10

Q12 Mathematics

An amount of ₹785 is divided among three persons in the ratio of 2 : 6 : 17. The difference between the largest and the smallest shares (in ₹) in the distribution is:

A. 566

B. 496

C. 471



D. 434

Q13 Mathematics

In covering a distance of 110 km, Pranay takes 6 hours more than Aman. If Pranay doubles his speed, then he would take 5 hours less than Aman. Pranay's speed is:

A. 5 km/hr



B. 14 km/hr

C. 6 km/hr

D. 11 km/hr

Q14 Mathematics

If the 6-digit number N51M91 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M - N = 4$



B. $M - N = 1$

C. $M + N = -4$

D. $M = N$

Q15 Mathematics

If 2 times Mary's present age is 16 years more than 3 times Diya's present age, and 2 times Diya's present age is 2 years less than Mary's present age, then what is the difference (in years) between the ages of Mary and Diya?

A. 14



B. 17

C. 10

D. 15

Q16 Mathematics

Arjun and Malaika have to travel from Delhi to Kanpur in their respective cars. Arjun is driving at 60 km/hr while Malaika is driving at 96 km/hr. Find the time taken by Malaika to reach Kanpur if Arjun takes 8 hours.

A. 5 hours



B. 9 hours

C. 6 hours

D. 1 hours

Q17 Mathematics

What single discount is equivalent to three successive discounts of 24%, 26% and 18%? (Rounded off to two decimal places)

A. 51.48%

B. 54.42%

C. 53.88%



D. 54.94%



Q18 Mathematics

The marks scored by 10 students are given below.

10, 19, 18, 18, 13, 14, 16, 18, 16, 12

The mode of the data is:

A. 13

B. 10

C. 18



D. 19

Q19 Mathematics

Evaluate: $(-9) - (-60) \div (-6) + (-3) \times 6$

A. -39

B. -37



C. -40

D. -36

Q20 Mathematics

The LCM of the numbers 4.8 and 0.024 is:

A. 4.8



B. 0.48

C. 0.048

D. 48

Q21 Mathematics

Given that $134^{0.78} = x$, $134^{0.52} = y$ and $x^z = y^8$, then the value of z is close to:

A. 5.33



B. 5.72

C. 6.77

D. 7.89

Q22 Mathematics

Find the mean proportional between 28 and 252.

A. 81

B. 83

C. 84



D. 86

Q23 Mathematics

A book with a printed price of ₹4,500 is available on successive discounts of 10%, 20% and 25%. Find the selling price of the book.

A. ₹2,420

B. ₹2,440

C. ₹2,410

D. ₹2,430



Q24 Mathematics

Pipe A can fill a tank in 16 hours, pipe B can fill the same tank in 23 hours and pipe C can fill the same tank in 10 hours. The time taken by them to fill the same tank if they operate together is::

A. $4\frac{324}{379} \text{ hours}$



B. $13\frac{324}{379} \text{ hours}$

C. $10\frac{324}{379} \text{ hours}$

D. $1\frac{324}{379} \text{ hours}$

Q25 Mathematics

A cylindrical rod has an outer curved surface area of 7700 cm^2 . If the length of the rod is 95 cm, then the outer radius (in cm) of the rod, correct to two places of decimal, is:

(Take $\pi = \frac{22}{7}$)

A. 11.99

B. 11.54

C. 12.89



D. 11.14

Q26 Mathematics

Shifa can do a certain piece of work in 28 days. Shifa and Afiya can together do the same work in 20 days, and Shifa, Afiya and Mariyam can do the same work together in 10 days. In how many days can Shifa and Mariyam do the same work together?

A. $\frac{39}{5}$

B. $\frac{36}{4}$

C. $\frac{41}{3}$

D. $\frac{35}{3}$



Q27 Mathematics

The sum of all interior angles of a regular polygon is 1620° . What is the measure (in degrees) of its each exterior angle?

A. $33\frac{8}{11}$

B. $32\frac{8}{11}$ ✓

C. $31\frac{8}{11}$

D. $34\frac{8}{11}$

Q28 Mathematics

The selling price of 25 books is equal to the cost price of 5 books. Find the loss or gain percentage.

A. $\frac{100}{20}\%$ loss

B. $\frac{100}{20}\%$ gain

C. 80% loss ✓

D. 80% gain

Q29 Mathematics

The angle made by a point on the ground and the top of a building with ground is 30° .

If the point is x units distance away from the bottom of the building, then the height of the building (in units) is:

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

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

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

D. $\frac{x}{\sqrt{3}}$ ✓

Q30 Mathematics

By how much is 65% of 65 greater than $\frac{2}{5}$ of 45?

A. 22.25

B. 18.25

C. 24.25 ✓

D. 21.25



Mathematics

30 Questions • Answer Key

Q1 Mathematics

If 3 times the mother's age is 29 years more than 5 times her daughter's age, and 2 times the daughter's age is 2 years less than the mother's age, then what is the difference (in years) between the ages of the mother and the daughter?

A. 25



B. 24

C. 23

D. 29

Q2 Mathematics

In an election between two candidates, 82% of the registered voters cast their vote and 4% of the votes polled were found invalid. The winning candidate got 60% of the valid votes and won the election by a margin of 1968 votes. How many voters were registered?

A. 12497

B. 12500



C. 12502

D. 12501

Q3 Mathematics

A publisher gives 15% discount on the printed price of a book to booksellers. What does a book seller pay (in ₹) for a book whose printed price is ₹2,400?

A. 2,004

B. 2,420

C. 2,040



D. 2,140

Q4 Mathematics

The LCM of $3^3 \times 9^2 \times 13$, $3^2 \times 13^2 \times 18$ and $9^3 \times 13^2 \times 18^2$ is

A. $22 \times 310 \times 132$ B. $23 \times 310 \times 132$ C. $22 \times 311 \times 132$ D. $22 \times 39 \times 132$

Q5 Mathematics

Pooja, Harsh, and Madhur invest ₹1,120, ₹1,320, and ₹1,160, respectively to start a business. If the profit at the end of the year is ₹1,080, then what is the share of Madhur in the profit?

A. ₹348



B. ₹349

C. ₹347

D. ₹351

Q6 Mathematics

₹35,200 were divided among A, B and C, such that 8 times the share of A = 6 times the share of B = 3 times the share of C. Find the share of A.

A. ₹6,872

B. ₹7,040



C. ₹7,220

D. ₹7,197

Q7 Mathematics

The H.C.F. and the L.C.M. of two numbers are 8 and 4200, respectively. If one of the numbers is 168, find the other one.

A. 100

B. 400

C. 200



D. 300

Q8 Mathematics

A man driving a car at a speed of 48 km/hr crosses a bridge in 4.6 minutes. Find the length of the bridge.

A. 4.35 km

B. 2.75 km

C. 3.92 km

D. 3.68 km



Q9 Mathematics

A number, when increased by 60%, gives 3560. The number is:

- A. 4450
- B. 6675
- C. 2225
- D. 1112.5

**Q10 Mathematics**

The average weight of Salil, Mukund and Sachin is 45 kg. If the average weight of Salil and Mukund is 44 kg and that of Mukund and Sachin is 48 kg, then the weight of Mukund (in kg) is:

- A. 64
- B. 69
- C. 49
- D. 59

**Q11 Mathematics**

The marked price of a wet grinder is ₹6,500. It was sold at two successive discounts of 5% and 4%. Find its selling price.

- A. ₹5,928
- B. ₹5,500
- C. ₹5,630
- D. ₹5,850

**Q12 Mathematics**

86 light bulbs were purchased for ₹86, and 14 light bulbs broke in transit. The trader sold the remaining light bulbs at ₹3.20 each. Find his profit.

- A. ₹141.10
- B. ₹137.10
- C. ₹141.30
- D. ₹144.40

**Q13 Mathematics**

The average weight of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 75 kg and 38 kg is:

- A. 53.6 kg
- B. 50.6 kg
- C. 51.6 kg
- D. 52.6 kg

**Q14 Mathematics**

Simplify: $x(6x - 9) + 6(x^2 - 3) + 19$

- A. $-12 \times 2 - 9x - 1$
- B. $-12 \times 2 - 9x + 1$
- C. $12 \times 2 - 9x - 1$
- D. $12 \times 2 - 9x + 1$

**Q15 Mathematics**

The product of two positive numbers is 2000. If the first number is five times the second number, then the sum of the two numbers is:

- A. 125
- B. 133
- C. 120
- D. 121

**Q16 Mathematics**

Find the mean proportional of 225 and 4.

- A. 30
- B. 32
- C. 28
- D. 27

**Q17 Mathematics**

The number of prime numbers lying between 332 and 343, both included, is:

- A. 4
- B. 1
- C. 2
- D. 3

**Q18 Mathematics**

Find the surface area of a cube, whose each side measures 9 cm.

- A. 486 cm²
- B. 324 cm²
- C. 729 cm²
- D. 364 cm²



Q19 Mathematics

In covering a distance of 52 km, Anmol takes 6 hours more than Nikhil. If Anmol doubles his speed, then he would take 7 hours less than Nikhil. Anmol's speed is:

A. 4 km/hr

B. 2 km/hr



C. 7 km/hr

D. 6 km/hr

Q20 Mathematics

If the radius of a sphere is 24 cm, then its surface area is:

A. $2280 \pi \text{ cm}^2$

B. $2330 \pi \text{ cm}^2$

C. $2374 \pi \text{ cm}^2$

D. $2304 \pi \text{ cm}^2$

**Q23 Mathematics**

A can lay railway track between two given stations in 17 days and B can do the same job in 12 days. With the help of C, they did the job in 3 days only. Then, C alone can do the job in

A. $5\frac{3}{13} \text{ days}$



B. $7\frac{3}{13} \text{ days}$

C. $6\frac{3}{13} \text{ days}$

D. $12\frac{3}{13} \text{ days}$

Q24 Mathematics

The value of $2^2 + \sqrt{10^2} - 9\sqrt{16} - 17$ is

A. -48

B. -39



C. -31

D. -36

Q21 Mathematics

The number 726179 is divisible by which of the following?

A. 20

B. 23



C. 29

D. 28

Q22 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 5 months.

A. ₹120

B. ₹20

C. ₹240



D. ₹40



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Q25 Mathematics

Simplify $\frac{(x^2 - 9) \times (9x^2 - 1)}{\left(x - \frac{1}{3}\right) \times \left(1 - \frac{x}{3}\right)} \times \frac{9}{\left(x + \frac{1}{3}\right) \times \left(1 + \frac{x}{3}\right)}$.

A. -729



B. -81

C. 81

D. 729

Q26 Mathematics

Pipe P can fill $\frac{2}{7}$ part of a tank in 18 hours, and pipe Q can fill $\frac{5}{9}$ part of the same tank in 25 hours.

Both P and Q were kept open for 3 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 8 hours. Pipes P, Q and R together can fill the empty tank in:

A. 38 hours

B. 25 hours

C. 53 hours

D. 42 hours



Q27 Mathematics

If $\sin \theta = \frac{p^2 - 1}{p^2 + 1}$, and θ is an acute angle, then find the value of $\cos \theta$.

A. $\frac{1 + 2p}{p^2 - 1}$

B. $\frac{p^2 + 1}{2p}$

C. $\frac{2p}{p^2 - 1}$

D. $\frac{2p}{p^2 + 1}$



Q28 Mathematics

ABCD is a quadrilateral such that $\angle A = 47^\circ$, $\angle B = 66^\circ$, $\angle C = 133^\circ$ and $\angle D = 114^\circ$. What type of a quadrilateral is ABCD?

A. Rhombus

B. Parallelogram

C. Cyclic quadrilateral



D. Trapezium



Q29 Mathematics

A trader claims to sell fruits at a profit of 22%, but also dishonestly uses a weight which is 4% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 24%

B. 25%

C. 28%

D. 27%

**Q30** Mathematics

The simple interest on a certain sum for $4\frac{2}{5}$ years at the rate of 7.6% per annum is ₹8,778.

What will be the amount payable on the same sum at the rate of 4.8% per annum simple interest in $8\frac{2}{7}$ years?

A. ₹36,699

B. ₹36,698

C. ₹36,690

D. ₹36,672



Mathematics

30 Questions • Answer Key

Q1 Mathematics

If the third proportional of 50 and 30 is x , then what is the value of x ?

A. 21

B. 18



C. 15

D. 20

Q2 Mathematics

A woman travels 488 km at 61 km/hr, a second distance of 468 km at 78 km/hr and a third distance of 210 km at 35 km/hr. Find her average speed for the whole journey (in km/hr).

A. 68.8

B. 58.3



C. 61.1

D. 59.7

Q3 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 60^\circ$. E is a point on BC such that $\angle CAE = 49^\circ$. What is the measure of $\angle AEB$?

A. 87° B. 85° C. 80° D. 79° 

Q4 Mathematics

The sum of five numbers is 655. The average of the first two numbers is 80 and the third number is 108. Find the average of the remaining two numbers.

A. 194.5

B. 193.5



C. 189

D. 188

Q5 Mathematics

If 3 times Mary's present age is 22 years more than 5 times Dia's present age, and 3 times Dia's present age is 2 years less than Mary's present age, then what is the difference (in years) between the ages of Mary and Dia?

A. 10



B. 13

C. 7

D. 15

Q6 Mathematics

The sides of a triangle are 72 cm, 90 cm, and 54 cm. What is its area? (in cm^2)

A. 1973

B. 1912

C. 1954

D. 1944



Q7 Mathematics

The LCM of the numbers 4.7 and 0.04 is:

A. 0.094

B. 94

C. 9.4



D. 0.94

Q8 Mathematics

The cost of 10 pens and 3 pencils is ₹129. If the cost of a pen decreases by ₹6 and the cost of a pencil increases by ₹9, then the cost of 8 pens and 2 pencils is ₹72. What is the original cost of 9 pens and 16 pencils?

A. ₹161

B. ₹160

C. ₹156



D. ₹155



Q9 Mathematics

A book has a marked price of ₹500. During a festive sale, it is sold at a 10% discount. What is the amount of discount given?

A. ₹45

B. ₹40

C. ₹60

D. ₹50

**Q10 Mathematics**

Neha, Rajat, and Avinash invest ₹1,430, ₹1,680, and ₹1,340, respectively, to start a business. If the profit at the end of the year is ₹1,780, then what is the share of Avinash in the profit?

A. ₹536



B. ₹537

C. ₹533

D. ₹538

Q11 Mathematics

The value of $67 - 9 \times [4 + 3 \times \{16 - 8(6 - 5) \times 2\} \div 32]$ is:

A. 47

B. 40

C. 25

D. 31

**Q12 Mathematics**

The H.C.F. and the L.C.M. of two numbers are 11 and 440, respectively. If one of the numbers is 55, find the other one.

A. 70

B. 14

C. 88



D. 10

Q13 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 3% per month in 4 months.

A. 12

B. 24

C. 32

D. 144

**Q14 Mathematics**

The income of Raman is ₹91,700. He saves 25% of his income. If his income increases by 27% and expenditure increases by 40%, then his savings will:

A. decrease by ₹2,753

B. increase by ₹2,753

C. decrease by ₹2,751



D. increase by ₹2,754

Q15 Mathematics

If the radius of a sphere is increased to twelve times its original radius, then by how many times does its surface area increase?

A. 64

B. 144



C. 128

D. 164

Q16 Mathematics

The average weight of Rupesh, Mandar and Ketan is 45 kg. If the average weight of Rupesh and Mandar is 43 kg and that of Mandar and Ketan is 49 kg, then the weight of Mandar (in kg) is:

A. 49



B. 59

C. 69

D. 64

Q17 Mathematics

A man walks to a viewpoint and returns to the starting point by his car maintaining constant speed and thus takes a total time of 4 hours 30 minutes. He would have gained 2 hours by driving both ways. How long would it have taken for him to walk both ways with same walking speed?

A. 5 hours 15 minutes

B. 6 hours 45 minutes

C. 7 hours 30 minutes

D. 6 hours 30 minutes



Q18 Mathematics

Abdul and Mohsin together invested ₹79,200 in a business. At the end of the year, out of a total profit of ₹14,400, Mohsin's share was ₹2,600. What was the difference between their investments?

A. ₹49,800

B. ₹52,000

C. ₹51,400

D. ₹50,600

Q19 Mathematics

An article listed at ₹500 is sold at successive discounts of 10% and 14%. The buyer wants to sell it at a profit of 15% after offering a 10% discount. What should be his list price (in ₹)?

A. 494.50

B. 474

C. 484.50

D. 485

Q20 Mathematics

By how much is 65% of 75 greater than $\frac{3}{5}$ of 25?

A. 33.75

B. 31.75

C. 30.75

D. 27.75

Q21 Mathematics

Simplify the following.

$$2\left(\left(\frac{5}{2}\right)x^2 - 28x + 17\right) - 5(x^2 + 6x - 18)$$

A. $86x + 124$ B. $-86x + 124$ C. $86x - 124$ D. $-86x - 124$ **Q22 Mathematics**

If $\operatorname{cosec} \theta + \sin \theta = 2$, then find the value of $\operatorname{cosec}^6 \theta + \sin^6 \theta$.

A. 2

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

C. 1

D. 3



Q23 Mathematics

Shifa can do a certain piece of work in 30 days. Shifa and Afiya can together do the same work in 18 days, and Shifa, Afiya and Mariyam can do the same work together in 9 days. In how many days can Shifa and Mariyam do the same work?

A. $\frac{40}{5}$

B. $\frac{53}{6}$

C. $\frac{37}{4}$

D. $\frac{45}{4}$ ✓

Q24 Mathematics

Manisha bought a toy for ₹849, decorated it at a cost of ₹6 and sold the toy for ₹441. Find the loss or profit percentage.

A. $\frac{920}{19}\%$ profit

B. $\frac{920}{19}\%$ loss ✓

C. $\frac{930}{19}\%$ profit

D. 920 % loss

Q25 Mathematics

Pipe A can fill a tank in 17 hours, pipe B can fill the same tank in 24 hours and pipe C can fill the same tank in 18 hours. The time taken by them to fill the same tank if they operate together is::

A. $13\frac{78}{191}$ hours

B. $16\frac{78}{191}$ hours

C. $6\frac{78}{191}$ hours ✓

D. $10\frac{78}{191}$ hours



Q26 Mathematics

The value of $2^3 - 3^2 + \left(\frac{2}{2}\right)^2 - 2 + 4 \times 7 =$ _____.

A. 31

B. 28

C. 26



D. 35

Q27 Mathematics

The value of $\sqrt{169} + \sqrt{0.0196} - \sqrt{4.41}$ is _____.

A. 6.17

B. 4.52

C. 11.04



D. 5.64

Q28 Mathematics

A trader claims to sell pulses at a profit of 48%, but also dishonestly uses a weight which is 12% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 68%



B. 63%

C. 71%

D. 72%

Q29 Mathematics

The simple interest on a certain sum for $9\frac{1}{2}$ years at the rate of 5.9% per annum is ₹6,726.

What will be the amount payable on the same sum at the rate of 5.6% per annum simple interest in $3\frac{1}{7}$ years?

A. ₹14,104

B. ₹14,112



C. ₹14,100

D. ₹14,095

Q30 Mathematics

The value of $2^2 + \sqrt{5^2} - 3\sqrt{25} - 10$ is

A. -7

B. -8

C. -10

D. -16



Mathematics

30 Questions • Answer Key

Q1 Mathematics

A man walks to a viewpoint and returns to the starting point by his car maintaining constant speed and thus takes a total time of 7 hours 45 minutes. He would have gained 6 hours by driving both ways. How long would it have taken for him to walk both ways with same walking speed?

- A. 12 hours 45 minutes
- B. 14 hours 15 minutes
- C. 13 hours 30 minutes
- D. 13 hours 45 minutes



Q2 Mathematics

Simplify: $x(3x - 6) + 4(x^2 - 5) + 15$

- A. $7x^2 - 6x + 5$
- B. $-7x^2 - 6x - 5$
- C. $-7x^2 - 6x + 5$
- D. $7x^2 - 6x - 5$



Q3 Mathematics

The marks scored by 10 students are given below.

10, 13, 17, 11, 11, 13, 14, 16, 13, 13

The mode of the data is:

- A. 10
- B. 11
- C. 17
- D. 13



Q4 Mathematics

₹13,700 were divided among A, B and C such that 4 times the share of A = 7 times the share of B = 2 times the share of C. Find the share of A.

- A. ₹3,664
- B. ₹3,921
- C. ₹3,836
- D. ₹3,988



Q5 Mathematics

A woman travels 432 km at 72 km/hr, a second distance of 275 km at 55 km/hr and a third distance of 680 km at 85 km/hr. Find her average speed for the whole journey (in km/hr).

- A. 66
- B. 76
- C. 80
- D. 73



Q6 Mathematics

An amount of ₹432 is divided among three persons in the ratio of 5 : 14 : 17. The difference between the largest and the smallest shares (in ₹) in the distribution is:

- A. 132
- B. 62
- C. 178
- D. 144



Q7 Mathematics

The H.C.F. and the L.C.M. of two numbers are 2 and 410, respectively. If one of the numbers is 82, find the other one.

- A. 93
- B. 54
- C. 11
- D. 10



Q8 Mathematics

The product of two consecutive natural numbers is 272. The greater of the two numbers is:

- A. 28
- B. 9
- C. 17
- D. 36



Q9 Mathematics

Find the mean proportional between 15 and 240.

A. 57

B. 60



C. 63

D. 58

Q10 Mathematics

The LCM of the numbers 2.8 and 0.217 is:

A. 0.868

B. 868

C. 86.8



D. 8.68

Q11 Mathematics

4 years ago, the age of a father was 33 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 25

B. 28

C. 29



D. 34

Q12 Mathematics

The H.C.F. and the L.C.M. of two numbers are 28 and 840, respectively. If one of the numbers is 168, find the other one.

A. 196

B. 140



C. 112

D. 84

Q13 Mathematics

Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 5.5 years at 8% per annum rate of interest.

A. 226

B. 276

C. 156

D. 176

**Q14 Mathematics**

Evaluate 34^2 .

A. 1156



B. 1186

C. 1176

D. 1166

Q15 Mathematics

The average of first 157 even numbers is

A. 157.5

B. 159

C. 158



D. 158.5

Q16 Mathematics

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 63^\circ$. E is a point on BC such that $\angle CAE = 76^\circ$. What is the measure of $\angle AEB$?

A. 91°

B. 96°

C. 105°

D. 103°

**Q17 Mathematics**

The income of Raman is ₹34,000. He saves 28% of his income. If his income increases by 11% and expenditure increases by 30%, then his savings will:

A. increase by ₹3,644

B. decrease by ₹5,649

C. decrease by ₹3,604



D. increase by ₹5,639

Q18 Mathematics

A kurta is marked for ₹750 and sold for ₹660. The rate of discount is:

A. 15%

B. 12%



C. 20%

D. 14%



Q19 Mathematics

The sides of a triangle are 72 cm, 97 cm, and 65 cm. What is its area? (in cm^2)

A. 2378

B. 2355

C. 2340



D. 2323

Q20 Mathematics

A wholesaler increases the cost price of an item by 90% while marking it. He then offers a 60% discount on this marked price but finds that he incurs a loss. If the wholesaler wants to achieve no profit and no loss, by what percentage should he change the selling price of the item? (Rounded to one decimal place.)

A. 34.5% increase

B. 31.6% increase



C. 32.1% decrease

D. 35.7% decrease

Q21 Mathematics

One diagonal and perimeter of a rhombus are 16 cm and 40 cm, respectively. Find the other diagonal.

A. 11 cm

B. 12 cm



C. 10 cm

D. 14 cm

Q22 Mathematics

If $P = \sec\theta + \tan\theta$, then the value of $\frac{P^2 + 1}{2P}$ is:

A. 1

B. 0

C. $\tan\theta$

D. $\sec\theta$

**Q23 Mathematics**

By how much is 65% of 65 greater than $\frac{3}{5}$ of 45?

A. 15.25



B. 12.25

C. 13.25

D. 9.25



Q24 Mathematics

By selling an article at $\frac{3}{8}$ of its actual selling price, Nirbhay incurs a loss of 13%.

If he sells it at 70% of its actual selling price, then the profit percentage is:

A. 62.4%



B. 63.5%

C. 63.3%

D. 60.5%

Q25 Mathematics

Ayushi bought a toy for ₹461, decorated it at a cost of ₹15, and sold the toy for ₹918. Find the loss or gain percentage.

A. $\frac{650}{7}\%$ profit



B. $\frac{650}{7}\%$ loss

C. 650% profit

D. $\frac{660}{7}\%$ loss

Q26 Mathematics

Pipe A can fill a tank in 17 hours, pipe B can fill the same tank in 27 hours and pipe C can fill the same tank in 12 hours. The time taken by them to fill the same tank if they operate together is::

A. $13\frac{191}{329}$ hours

B. $5\frac{191}{329}$ hours



C. $14\frac{191}{329}$ hours

D. $10\frac{191}{329}$ hours

Q27 Mathematics

The value of $\sqrt{169} + \sqrt{0.04} - \sqrt{6.76}$ is ____.

A. 9.88

B. 14.94

C. 10.6



D. 10.57



Q28 Mathematics

The simple interest on a certain sum for $4\frac{5}{9}$ years at the rate of 3.6% per annum is ₹ 5,453.

What will be the amount payable on the same sum at the rate of 2.7% per annum simple interest in $6\frac{2}{9}$ years?

A. ₹38,836



B. ₹38,828

C. ₹38,841

D. ₹38,819

Q29 Mathematics

Pipe P can fill $\frac{5}{9}$ part of a tank in 25 hours, and pipe Q can fill $\frac{3}{7}$ part of the same tank in 27 hours.

Both P and Q were kept open for 3 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 4 hours. Pipes P, Q and R together can fill the empty tank in:

A. 93 hours

B. 108 hours

C. 112 hours

D. 105 hours

**Q30** Mathematics

The value of $\sqrt{169} + \sqrt{0.0324} - \sqrt{7.29}$ is _____.

A. 4.97

B. 16.76

C. 10.48



D. 7.76



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Find the area of a triangle whose sides are of lengths 5 cm, 12 cm and 13 cm.

- A. 60 cm²
- B. 30 cm² ✓
- C. 78 cm²
- D. 32.5 cm²

Q2 Mathematics

The average runs scored by a batsman in 23 matches is 44. In the next 10 matches, the batsman scored an average of 14 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

- A. 36.91
- B. 35.91
- C. 34.91 ✓
- D. 33.91

Q3 Mathematics

Aryan has to reach Ahmedabad which is 977 km away in 11 hours. His starting speed for 4 hours was 39 km/hr. For the next 140 km his speed was 35 km/hr. By what speed he must travel now so as to reach Ahmedabad in the decided time of 11 hours?

- A. 231 km/hr
- B. 221 km/hr
- C. 227 km/hr ✓
- D. 229 km/hr

Q4 Mathematics

A shopkeeper offers a scheme discount of 'Buy goods worth ₹6000 and get ₹1000 worth of goods free'. What is the effective discount percentage (rounded off to two decimals)?

- A. 20%
- B. 16.67%
- C. 14.29% ✓
- D. 12%

Q5 Mathematics

A sum of money triples itself at a certain rate of compound interest in 3 years. In how many years will it amount to 27 times of itself?

- A. 3 years
- B. 9 years ✓
- C. 11 years
- D. 17 years

Q6 Mathematics

Ishan bought some pens at the rate of ₹150/dozen. He sold them for ₹17 each. His profit percentage is ____%.

- A. 40
- B. 34
- C. 36 ✓
- D. 38

Q7 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 3% per month in 5 months.

- A. 15
- B. 30
- C. 35
- D. 180 ✓

Q8 Mathematics

If the radius of the base of a right circular cylinder is decreased by 19% and its height is increased by 122%, then what is the percentage increase (closest integer) in its volume?

- A. 50%
- B. 33%
- C. 40%
- D. 46% ✓



Q9 Mathematics

A number when increased by 100% gives 2690. The number is:

A. 1345



B. 4035

C. 672.5

D. 2690

Q10 Mathematics

The sum of five numbers is 655. The average of the first two numbers is 80, and the third number is 103. Find the average of the remaining two numbers.

A. 196



B. 183

C. 184

D. 197

Q11 Mathematics

The sum of two numbers is 115 and their L.C.M. is 600. What are the two numbers?

A. 33, 82

B. 40, 75



C. 38, 77

D. 45, 70

Q12 Mathematics

If the third proportional of 8 and 56 be x, then what is the value of x?

A. 390

B. 394

C. 393

D. 392

**Q13 Mathematics**

An amount of ₹456 is divided among three persons in the ratio of 16 : 14 : 8. The difference between the largest and the smallest shares (in ₹) in the distribution is:

A. 120

B. 96



C. 133

D. 48

Q14 Mathematics

6 years ago, the age of a father was 40 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 33

B. 30

C. 37

D. 34

**Q15 Mathematics**

Shahid and Mira have to travel from Delhi to Kanpur in their respective cars. Shahid is driving at 132 km/hr while Mira is driving at 60 km/hr. Find the time taken by Mira to reach Kanpur if Shahid takes 5 hours.

A. 8 hours

B. 4 hours

C. 1 hours

D. 11 hours

**Q16 Mathematics**

The product of two consecutive natural numbers is 30. The greater of the two numbers is:

A. 3

B. 12

C. 24

D. 6

**Q17 Mathematics**

The sum of two numbers is 81 and their L.C.M. is 420. What are the two numbers?

A. 14, 67

B. 19, 62

C. 21, 60



D. 26, 55

Q18 Mathematics

The marked price of a ceiling fan is ₹2,500. During off season, it is sold for ₹1,360. Find the discount percentage.

A. 45.6%



B. 44.5%

C. 45%

D. 42%



Q19 Mathematics

Rupesh got an increase of 4% in his sales amount in the first year and 25% in the second year; also with this, his current sales are ₹1,35,200, what was his sales (in ₹) two years ago?

- A. ₹1,08,160
- B. ₹1,30,000
- C. ₹84,000
- D. ₹1,04,000

**Q20 Mathematics**

M and N started a business. M invested ₹66,000 more than N for 5 months, while N invested for 7 months. M's share is ₹205 more than that of N, out of a total profit of ₹3,895. Find the capital contributed by M.

- A. ₹1,84,800
- B. ₹1,84,602
- C. ₹1,84,910
- D. ₹1,84,849

**Q21 Mathematics**

The LCM of the numbers 10.8 and 0.06 is:

- A. 1.08
- B. 108
- C. 10.8
- D. 0.108

**Q22 Mathematics**

The LCM of the numbers 14.2 and 0.05 is:

- A. 142
- B. 0.142
- C. 14.2
- D. 1.42

**Q23 Mathematics**

The sum of all interior angles of a regular polygon is equal to twice the sum of all its exterior angles. The number of sides of the polygon is:

- A. 8
- B. 6
- C. 4
- D. 3

**Q24 Mathematics**

Simplify: $3\left(\left(\frac{4}{3}\right)x^2 - 25x + 12\right) - 4(x^2 + 7x - 18)$

- A. $-103x - 108$
- B. $103x - 108$
- C. $103x + 108$
- D. $-103x + 108$

**Q25 Mathematics**

The value of $7^2 + \sqrt{10^2} - 2\sqrt{64} - 6$ is

- A. 37
- B. 38
- C. 29
- D. 46



Q26 Mathematics

The value of $\sqrt{196} + \sqrt{0.0324} - \sqrt{5.76} =$

A. 11.78



B. 16.52

C. 3.21

D. 8.04

Q27 Mathematics

A can lay railway track between two given stations in 19 days and B can do the same job in 15 days. With the help of C, they did the job in 3 days only. Then, C alone can do the job in

A. $13\frac{41}{61}$ days

B. $11\frac{41}{61}$ days

C. $4\frac{41}{61}$ days



D. $7\frac{41}{61}$ days

Q28 Mathematics

The value of $\frac{\sin^3 A - \cos^3 A}{1 + \sin A \cdot \cos A} + 2 \sin^2 54^\circ \sec^2 36^\circ$ is:

A. $\sin A \cdot \cos A + 2$

B. $\sin A + \cos A - 2$

C. $\sin A - \cos A + 2$



D. $2(1 + \sin A \cdot \cos A)$

Q29 Mathematics

A trader claims to sell spices at a profit of 68%, but also dishonestly uses a weight which is 12% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round off the answer to the nearest whole number.)

A. 88%

B. 89%

C. 91%



D. 96%



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Q30 Mathematics

Shifa can do a certain piece of work in 20 days. Shifa and Afiya can together do the same work in 12 days, and Shifa, Afiya and Mariyam can do the same work together in 9 days. In how many days can Shifa and Mariyam do the same work together?

A. $\frac{83}{8}$

B. $\frac{90}{7}$



C. $\frac{85}{9}$

D. $\frac{80}{7}$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

A shopkeeper lists the price of a fan at 44% above its cost price and offers a 25% discount on its list price. If he earns a profit of ₹67, then what is the list price (in ₹) of the fan?

A. 1,206



B. 1,194

C. 1,441

D. 1,457

Q2 Mathematics

A shopkeeper gives two successive discounts of 20% and 10% on a shirt marked at ₹1,200. What is the final selling price?

A. ₹890

B. ₹864



C. ₹880

D. ₹870

Q3 Mathematics

Gopal, Hema, and Uday invest ₹1,130, ₹1,030, and ₹1,840, respectively, to start a business. If the profit at the end of the year is ₹1,800, then what is the share of Uday in the profit?

A. ₹830

B. ₹831

C. ₹828



D. ₹825

Q4 Mathematics

What is the number of iron balls, each of radius 4 cm, that can be moulded out of a sphere of diameter 64 cm?

A. 729

B. 343

C. 512



D. 216

Q5 Mathematics

The sum of five numbers is 655. The average of the first two numbers is 80 and the third number is 106. Find the average of the remaining two numbers.

A. 195.5

B. 187

C. 186

D. 194.5



Q6 Mathematics

A man driving a car at a speed of 21 km/hr crosses a bridge in 18 minutes. Find the length of the bridge.

A. 15.2 km

B. 6.3 km



C. 2.5 km

D. 4.7 km

Q7 Mathematics

The number 242425 is divisible by which of the following?

A. 5



B. 13

C. 9

D. 6

Q8 Mathematics

The average weight of Ram, Anwar and Amit is 45 kg. If the average weight of Ram and Anwar is 44 kg and that of Anwar and Amit is 42 kg, then the weight of Anwar (in kg) is:

A. 57

B. 52

C. 37



D. 47



Q9 Mathematics

The HCF and LCM of two numbers are 3 and 396, respectively. If one of the numbers is 132, find the other one.

A. 60

B. 90

C. 80

D. 9

**Q10 Mathematics**

If 43% of first number is equal to two-ninths of second number, what is the ratio of first number to the second number?

A. 200 : 387



B. 201 : 390

C. 202 : 384

D. 198 : 382

Q11 Mathematics

Find the value of: $[138 \div \{13 + 7 \times (3 - 4)\}]$.

A. 20

B. 18

C. 27

D. 23

**Q12 Mathematics**

If the radius of the base of a right circular cylinder is decreased by 28% and its height is increased by 141%, then what is the percentage increase (closest integer) in its volume?

A. 17%

B. 29%

C. 25%



D. 15%

Q13 Mathematics

The price of a laptop is ₹46,000, and a trade discount of 16% is available. What will be the final amount the customer pays?

A. ₹38,610

B. ₹38,685

C. ₹38,625

D. ₹38,640

**Q14 Mathematics**

In covering a distance of 102 km, Amit takes 8 hours more than Vinay. If Amit doubles his speed, then he would take 9 hours less than Vinay. Amit's speed is:

A. 3 km/hr



B. 10 km/hr

C. 8 km/hr

D. 11 km/hr

Q15 Mathematics

Which of the following statements is true regarding quadrilaterals?

(i) A rhombus can be a square, but not all squares are rhombuses.

(ii) In a trapezium, two pairs of opposite sides are equal.

(iii) A rhombus is a special type of a parallelogram.

(iv) Diagonals are equal in parallelograms and rhombuses.

A. i

B. iv

C. ii

D. iii

**Q16 Mathematics**

A man makes a monthly payment equal to 36% of his monthly salary towards debt repayment. He spends 50% of the remaining salary and saves ₹704. His monthly salary (in ₹) is:

A. 2,202

B. 2,200



C. 2,116

D. 2,104

Q17 Mathematics

The LCM of the numbers 2.9 and 0.031 is:

A. 89.9



B. 8.99

C. 0.899

D. 899



Q18 Mathematics

Sapna invested ₹22,400 on simple interest, partly at 12% per annum and partly at 8% per annum. If she earns equal interests from the two investments after 4 years, then find the sum invested at 12% per annum (in ₹).

A. 8,963

B. 8,958

C. 8,960



D. 8,962

Q19 Mathematics

The product of two consecutive natural numbers is 650. The greater of the two numbers is:

A. 26



B. 29

C. 31

D. 43

Q20 Mathematics

₹45,800 were divided among A, B and C such that 2 times the share of A = 4 times the share of B = 7 times the share of C. Find the share of A.

A. ₹25,828

B. ₹25,582

C. ₹25,611

D. ₹25,648

**Q24 Mathematics**

Kiran can do a certain piece of work in 26 days. Kiran and Garima can together do the same work in 13 days, and Kiran, Garima and Mehak can do the same work together in 10 days. In how many days can Kiran and Mehak do the same work together?

A. $\frac{60}{6}$ B. $\frac{65}{4}$ C. $\frac{74}{5}$ D. $\frac{64}{4}$ **Q21 Mathematics**

Find the value of: $69^{-4} \div 69^{15} \times 69^{-9}$

A. 69^{-23} B. 69^{-37} C. 69^{-38} D. 69^{-28} **Q22 Mathematics**

What smallest number should be added to 19964 so that the sum is completely divisible by 76?

A. 22

B. 21

C. 24



D. 25

Q23 Mathematics

If 2 times a mother's present age is 26 years more than 6 times her daughter's present age, and 4 times the daughter's present age is 4 years less than the mother's present age, then what is the difference (in years) between the ages of the mother and the daughter?

A. 31



B. 36

C. 29

D. 32



Q25 Mathematics

A can do a work in 11 days and B can do the same work in 23 days. If they work on it together for 2 days, then what fraction of the work is left?

A. $\frac{192}{253}$

B. $\frac{181}{253}$

C. $\frac{185}{253}$ ✓

D. $\frac{193}{253}$

Q26 Mathematics

Find the value of x satisfying: $3(3x^2 - 6) - 3(3x^2 + 5x - 7) = 19$

A. $-\frac{26}{15}$

B. $-\frac{14}{15}$

C. $-\frac{16}{15}$ ✓

D. $-\frac{13}{15}$

Q27 Mathematics

By how much is 65% of 75 greater than $\frac{3}{5}$ of 55?

A. 15.75 ✓

B. 12.75

C. 13.75

D. 9.75



Q28 Mathematics

Simplify: $\frac{(1 + \sin A)(\sec A - \tan A)}{\operatorname{cosec} A(1 - \cos A)(\operatorname{cosec} A + \cot A)}$

A. $\tan A$

B. $\cos A$ 

C. 1

D. 2

Q29 Mathematics

Himanshi bought a toy for ₹743, decorated it at a cost of ₹8 and sold the toy for ₹750. Find the loss or profit percentage.

A. $\frac{110}{751}\%$ profit

B. 100 % loss

C. $\frac{100}{751}\%$ profit

D. $\frac{100}{751}\%$ loss 

Q30 Mathematics

The simple interest on a certain sum for $2\frac{7}{8}$ years at the rate of 2.9% per annum is ₹8,671.

What will be the amount payable on the same sum at the rate of 4.5% per annum simple interest in $4\frac{2}{5}$ years?

A. ₹1,24,574

B. ₹1,24,590

C. ₹1,24,608

D. ₹1,24,592 



Mathematics

30 Questions • Answer Key

Q1 Mathematics

If the marked price of a calculator is ₹600 and ₹50 discount is offered on the calculator, then find the discount percentage (correct to two decimal places).

A. 9.53%

B. 8.33% ✓

C. 10.33%

D. 7.53%

Q2 Mathematics

The cost of 7 pens and 13 pencils is ₹128. If the cost of a pen decreases by ₹7 and the cost of a pencil increases by ₹2, then the cost of 14 pens and 10 pencils is ₹98. What is the original cost of 9 pens and 7 pencils?

A. ₹111

B. ₹117

C. ₹112

D. ₹116 ✓

Q3 Mathematics

The perimeter of a square is 52 m. Its area (in m^2) is:

A. 180

B. 168

C. 169 ✓

D. 172

Q4 Mathematics

Find the simple interest (in ₹) on ₹4,000 at 7.5% per annum rate of interest deposited on 10 February 2024 and withdrawn on 11 April 2024.

A. 49

B. 50 ✓

C. 48

D. 51

Q5 Mathematics

The LCM of the numbers 2.1 and 0.35 is:

A. 2.1 ✓

B. 21

C. 0.21

D. 0.021

Q6 Mathematics

If 2 times the age of Ram is 30 years more than 4 times the age of Ramya, and 5 times the age of Ramya is 6 year less than the age of Ram, then what is the difference (in years) between the ages of Ram and Ramya?

A. 15

B. 18 ✓

C. 13

D. 17

Q7 Mathematics

Which of the following numbers is divisible by 14?

A. 71,32,960

B. 67,94,266

C. 70,48,048 ✓

D. 64,36,639

Q8 Mathematics

Find the mean proportional between 25 and 36.

A. 27

B. 32

C. 30 ✓

D. 33



Q9 Mathematics

The marks scored by 10 students are given below.

12, 14, 16, 13, 15, 14, 16, 10, 16, 12

The mode of the data is:

A. 16



B. 14

C. 13

D. 12

Q10 Mathematics

A bus travelling at 28 km/hr completes a journey in 20 hours. What should its speed be to cover the same distance in 14 hours?

A. 34 km/hr

B. 50 km/hr

C. 40 km/hr



D. 39 km/hr

Q11 Mathematics

A shopkeeper marks a product 40% above the cost price. He offers a discount of 20% on the marked price and sells it. What is his gain or loss percentage?

A. 12% gain



B. 15% gain

C. 10% loss

D. 8% loss

Q12 Mathematics

Train A leaves station M at 8:20 AM and reaches station N at 3:20 PM on the same day. Train B leaves station N at 10:20 AM and reaches station M at 3:20 PM on the same day. Find the time when trains A and B meet.

A. 12:25 PM



B. 12:05 PM

C. 12:35 PM

D. 12:15 PM

Q13 Mathematics

In an election between two candidates, 95% of the registered voters cast their vote and 20% of the votes polled were found invalid. The winning candidate got 59% of the valid votes and won the election by a margin of 1881 votes. How many voters were registered?

A. 13750



B. 13751

C. 13749

D. 13747

Q14 Mathematics

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 4% per month for 7 months.

A. ₹48

B. ₹28



C. ₹336

D. ₹56

Q15 Mathematics

The H.C.F. and the L.C.M. of two numbers are 25 and 250 respectively. If one of the numbers is 50, find the other one.

A. 175

B. 150

C. 75

D. 125

**Q16 Mathematics**

Find the value of: $66^{-5} \div 66^{11} \times 66^{-12}$

A. 66^{-34}

B. 66^{-27}

C. 66^{-25}

D. 66^{-28}

**Q17 Mathematics**

A number, when decreased by 7%, gives 2790. The number is:

A. 6000

B. 3000



C. 9000

D. 1500



Q18 Mathematics

The average of first 153 odd natural numbers, is:

- A. 152.5
- B. 154
- C. 153.5
- D. 153

**Q19 Mathematics**

The number of prime numbers lying between 472 and 486, both included, is:

- A. 5
- B. 1
- C. 6
- D. 2

**Q20 Mathematics**

ABCD is a quadrilateral with $\angle A = 3(x + 2)^\circ$, $\angle B = 2(2x - 7)^\circ$, $\angle C = 69^\circ$ and $\angle D = \angle C - 8^\circ$. What is the value of $\angle B$?

- A. 183°
- B. 128°
- C. 153°
- D. 122°

**Q21 Mathematics**

Find the total surface area of a cuboidal box whose length is 84 cm, breadth is 45 cm and height is 25 cm.

- A. 14,250cm²
- B. 14,380cm²
- C. 14,010cm²
- D. 14,120cm²

**Q22 Mathematics**

Find the value of $[592 \div \{12 + 2 \times (3 - 7)\}]$.

- A. 152
- B. 148
- C. 147
- D. 145

**Q23 Mathematics**

By selling 6 tablets for a rupee, a man loses 35%. To gain 30% how many must he sell for a rupee?

- A. 3
- B. 4
- C. 5
- D. 2

**Q24 Mathematics**

A, B and C started a business investing ₹2,410, ₹1,170 and ₹700, respectively. If B's share in the profit earned by them is ₹1,092. what is the difference in the profit (in ₹) earned by A and C?

- A. ₹1,595
- B. ₹1,596
- C. ₹1,597
- D. ₹1,593

**Q25 Mathematics**

Anubhav and Gaurav start a business. Anubhav invests ₹37,000 more than Gaurav for 3 months and Gaurav invests for 4 months. Anubhav's share is ₹1,745 more than that of Gaurav, out of a total profit of ₹8,725. Find the capital contributed by Anubhav.

- A. ₹73,800
- B. ₹74,122
- C. ₹74,000
- D. ₹74,002

**Q26 Mathematics**

4 men can complete a piece of work in 18 days, while 9 women can do it in 8 days. In how many days can 3 women and 3 men complete this work?

- A. 17 days
- B. 16 days
- C. 12 days
- D. 11 days



Q27 Mathematics

Simplify: $\sqrt{\frac{(1 + \cos A)}{(1 - \cos A)}}$

- A. $\cos A + \cot A$
- B. $\sin A + \tan A$
- C. $\operatorname{cosec} A + \tan A$
- D. $\operatorname{cosec} A + \cot A$ ✓

Q28 Mathematics

Pipe A can fill a tank in 12 hours, pipe B can fill the same tank in 21 hours and pipe C can fill the same tank in 16 hours. The time taken by them to fill the same tank if they operate together is::

- A. $5\frac{11}{65} \text{ hours}$ ✓
- B. $11\frac{11}{65} \text{ hours}$
- C. $2\frac{11}{65} \text{ hours}$
- D. $1\frac{11}{65} \text{ hours}$

Q29 Mathematics

Simplify: $3\left(\left(\frac{7}{3}\right)x^2 - 28x + 14\right) - 7(x^2 + 4x - 14)$

- A. $-112x + 140$ ✓
- B. $112x + 140$
- C. $-112x - 140$
- D. $112x - 140$

Q30 Mathematics

By selling an article at $\frac{5}{11}$ of its actual selling price, Hitesh incurs a loss of 15%.

If he sells it at 90% of its actual selling price, then the profit percentage is:

- A. 68.3% ✓
- B. 66.6%
- C. 67.4%
- D. 69.8%



Mathematics

30 Questions · Answer Key

Q1 Mathematics

Find the mean proportional between 25 and 196.

A. 70



B. 67

C. 68

D. 73

Q2 Mathematics

The sum of two numbers is 78 and their L.C.M. is 180. What are the two numbers?

A. 60, 18



B. 58, 20

C. 65, 13

D. 53, 25

Q3 Mathematics

The current population of a town is 20,000. It increases by 30% and 50% in two successive years but decreases by 68% in the third year. What is the population of the town at the end of the third year?

A. 12,475

B. 12,480



C. 12,481

D. 12,485

Q4 Mathematics

The difference between a single discount of 52%, and two successive discounts of 35% and 4%, applied to a bill of ₹1,125, is ____.

A. ₹152

B. ₹132

C. ₹144

D. ₹162



Q5 Mathematics

Find the value of: $[167 \div \{17 + 4 \times (3 - 7)\}]$.

A. 164

B. 167



C. 166

D. 172

Q6 Mathematics

If 2 times the age of Ram is 24 years more than 2 times the age of Ramya, and 4 times the age of Ramya is 3 years less than the age of Ram, then what is the difference (in years) between the ages of Ram and Ramya?

A. 11

B. 12



C. 15

D. 9

Q7 Mathematics

Nisha, Sameer, and Rupesh invest ₹1,730, ₹1,420, and ₹1,350 respectively to start a business. If the profit at the end of the year is ₹1,490, then what is the share of Rupesh in the profit?

A. ₹445

B. ₹446

C. ₹447



D. ₹449

Q8 Mathematics

The average of first 149 odd natural numbers, is:

A. 150

B. 148.5

C. 149



D. 149.5

Q9 Mathematics

Two pipes can fill a cistern, individually, in 93 min and 31 min, respectively. There is a pipe located at the bottom of the cistern to empty it. If all the three pipes are opened simultaneously, then the empty cistern gets filled in 24 min. How long will the pipe at the bottom of the tank take to empty the completely filled cistern if no other pipe is then open?

A. 744 min



B. 730 min

C. 784 min

D. 761 min



Q10 Mathematics

If the 6-digit number N51M54 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

A. $M - N = -3$



B. $M - N = 1$

C. $M = N$

D. $M + N = 3$

Q11 Mathematics

In covering a distance of 56 km, Pranshu takes 3 hours more than Chandu. If Pranshu doubles his speed, he would take 4 hours less than Chandu. Pranshu's speed is:

A. 9 km/hr

B. 4 km/hr



C. 8 km/hr

D. 10 km/hr

Q12 Mathematics

The number 877217 is divisible by which of the following?

A. 2

B. 16

C. 12

D. 11

**Q13 Mathematics**

A shop offers 'Buy three for ₹6,000, get one free' for Dasara celebration, and also offers ₹600 cash back if a person pays in cash. What is the total percentage of discount offered for a customer who pays in cash?

A. 33.33%

B. 32.5%



C. 25.5%

D. 67.5%

Q14 Mathematics

If the radius of the base of a right circular cylinder is decreased by 23% and its height is increased by 151%, then what is the percentage increase (closest integer) in its volume?

A. 20%

B. 49%



C. 66%

D. 69%

Q15 Mathematics

I bought two dresses for ₹1,200. I sold the first one at a loss of 9% and the second at a gain of 15%. If, on the whole I made neither a loss nor a gain, find the cost price (in ₹) of the first dress.

A. 734

B. 750



C. 770

D. 774

Q16 Mathematics

Kunal and Abhishek start a business. Kunal invests ₹33,000 more than Abhishek for 7 months and Abhishek invests for 3 months. Kunal's share is ₹2,654 more than that of Abhishek, out of a total profit of ₹5,308. Find the capital contributed by Kunal.

A. ₹1,48,500



B. ₹1,48,367

C. ₹1,48,556

D. ₹1,48,647

Q17 Mathematics

Sapna invested ₹22,800 on simple interest, partly at 5% per annum and partly at 14% per annum. If she earns equal interests from the two investments after 4 years, then find the sum invested at 5% per annum (in ₹).

A. 16,799

B. 16,800



C. 16,798

D. 16,801

Q18 Mathematics

Two school bells ring at intervals of 36 minutes and 45 minutes. If both bells ring together at 9:00 a.m., when will they ring together again?

A. 11:36 a.m.

B. 12 noon



C. 11:48 a.m.

D. 1:12 p.m.



Q19 Mathematics

The sum of five numbers is 655. The average of the first two numbers is 80, and the third number is 104. Find the average of the remaining two numbers.

A. 196.5

B. 185

C. 184

D. 195.5 **Q20 Mathematics**

The product of two consecutive positive natural numbers is 110. The greater of the two numbers is:

A. 3

B. 11 

C. 7

D. 5

Q21 Mathematics

A bus travelling at 14 km/hr completes a journey in 20 hours. What should its speed be to cover the same distance in 5 hours?

A. 56 km/hr 

B. 61 km/hr

C. 53 km/hr

D. 63 km/hr

Q22 Mathematics

The interior angle between two adjacent sides of a regular n -sided polygon is _____ degrees.

A. $180 - \frac{360}{n}$ B. $90 - \frac{90}{n}$ C. $180 - \frac{90}{n}$ D. $180 - \frac{180}{n}$ **Q23 Mathematics**

$$\frac{22}{7}$$

A. 8910 cm^3 B. 8011 cm^3 C. 8110 cm^3 D. 8900 cm^3 

Q24 Mathematics

A sum of ₹2,500 amounts to ₹2,809 in 2 years at a certain rate of interest per annum, compounded annually. The rate of interest per annum is:

A. 8%

B. 6%



C. 3%

D. 7%

Q25 Mathematics

Simplify: $2\left(\left(\frac{5}{2}\right)x^2 - 22x + 11\right) - 5(x^2 + 9x - 11)$

A. $-89x - 77$

B. $89x + 77$

C. $-89x + 77$



D. $89x - 77$

Q26 Mathematics

The value of $7^2 + \sqrt{2^2} - 8\sqrt{81} - 7$ is

A. -28



B. -26

C. -19

D. -27

Q27 Mathematics

By selling an article at $\frac{4}{14}$ of its actual selling price, Hitesh incurs a loss of 15%.

If he sells it at 60% of its actual selling price, then the profit percentage is:

A. 78.5%



B. 78.7%

C. 78.1%

D. 77.5%



Q28 Mathematics

If $\sin\theta = x$, then $\frac{\sqrt{1+x}(\tan\theta)}{x} = \underline{\hspace{2cm}}$.

A. $\frac{1}{\sqrt{1-x}}$



B. $\sqrt{1-x}$

C. $\frac{1}{\sqrt{1+x}}$

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

Q29 Mathematics

By how much is 65% of 75 greater than $\frac{4}{5}$ of 25?

A. 26.75

B. 28.75



C. 22.75

D. 25.75

Q30 Mathematics

A can do a work in 9 days and B can do the same work in 21 days. If they work on it together for 2 days, then what fraction of the work is left?

A. $\frac{47}{63}$

B. $\frac{41}{63}$

C. $\frac{43}{63}$



D. $\frac{38}{63}$



Mathematics

30 Questions • Answer Key

Q1 Mathematics

Mahesh bought some sharpeners at the rate of ₹150 a dozen. He sold them for ₹21 each. His profit percentage is ____%.

- A. 70
- B. 66
- C. 72
- D. 68



Q2 Mathematics

A sum of ₹10,00,000 is invested in a bank at 11% interest per annum compounded annually. On maturity, the amount payable becomes ₹13,67,631. Find the time period of the investment.

- A. 1 year
- B. 2.5 years
- C. 3.5 years
- D. 3 years



Q3 Mathematics

The perimeter of a square is 160 m. Its area (in m^2) is:

- A. 1588
- B. 1600
- C. 1572
- D. 1597



Q4 Mathematics

M and N start a business. M invests ₹43,000 more than N for 6 months and N invests for 7 months. M's share is ₹472 more than that of N, out of a total profit of ₹3,304. Find the capital contributed by M.

- A. ₹1,20,000
- B. ₹1,21,400
- C. ₹1,20,400
- D. ₹1,20,600



Q5 Mathematics

Find the value of $69^{-4} \div 69^{10} \times 69^{-17}$.

- A. 69^{-32}
- B. 69^{-21}
- C. 69^{-31}
- D. 69^{-36}



Q6 Mathematics

Eight times the present age of P exceeds the present age of Q by 12 years. After 8 years, three times Q's age will be 28 years less than eight times P's age at that time. What is the present age (in years) of Q?

- A. 8
- B. 12
- C. 7
- D. 15



Q7 Mathematics

The cost of 13 pens and 3 pencils is ₹152. If the cost of a pen decreases by ₹1 and the cost of a pencil increases by ₹7, then the cost of 18 pens and 3 pencils is ₹165. What is the original cost of 12 pens and 11 pencils?

- A. ₹489
- B. ₹481
- C. ₹486
- D. ₹483



Q8 Mathematics

The number of prime numbers lying between 402 and 409, both included, is:

- A. 4
- B. 6
- C. 3
- D. 1



Q9 Mathematics

Vikram, Komal and Rishi invested ₹1,540, ₹1,760 and ₹1,170, respectively to start a business. If the profit at the end of the year is ₹1,490, what is Rishi's share of the profit?

A. ₹391

B. ₹392

C. ₹388

D. ₹390

**Q10 Mathematics**

The sum of two numbers is 40 and their L.C.M. is 351. What are the two numbers?

A. 18, 22

B. 13, 27



C. 11, 29

D. 6, 34

Q11 Mathematics

The average runs scored by a batsman in 23 matches is 40. In the next 10 matches, the batsman scored an average of 15 runs. Find his average runs scored (rounded off to two decimal places) in all 33 matches.

A. 32.42



B. 34.42

C. 31.42

D. 33.42

Q12 Mathematics

A number, when increased by 80%, gives 2430. The number is:

A. 2700

B. 675

C. 1350



D. 4050

Q13 Mathematics

The income of Raman is ₹41,400. He saves 24% of his income. If his income increases by 22% and expenditure increases by 25%, then his savings will:

A. decrease by ₹1,241

B. increase by ₹1,245

C. increase by ₹1,242



D. decrease by ₹1,244

Q14 Mathematics

The average weight of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 73 kg and 37 kg is:

A. 51 kg



B. 50 kg

C. 53 kg

D. 52 kg

Q15 Mathematics

Wasim travels 234 km at 78 km/hr, the next 441 km at 49 km/hr and the next 488 km at 61 km/hr. What is his average speed (in km/hr) for the whole journey?

A. 50.13

B. 58.15



C. 54.83

D. 50.87

Q16 Mathematics

Which of the following ratios is the greatest?

A. 35 : 80

B. 33 : 54

C. 38 : 75

D. 37 : 56

**Q17 Mathematics**

Find the value of: $[147 \div \{29 + 2 \times (4 - 8)\}]$.

A. 3

B. 9

C. 8

D. 7

**Q18 Mathematics**

The marked price of an article is ₹280. A discount of 12.5% is allowed on the marked price and a profit of 40% is made. The cost price of the article is:

A. ₹165

B. ₹180

C. ₹185

D. ₹175



Q19 Mathematics

A jacket is marked at ₹2,400. If it is sold at a 20% discount, what is the selling price?

- A. ₹2,000
- B. ₹1,980
- C. ₹1,900
- D. ₹1,920

**Q20 Mathematics**

The LCM of $5^3 \times 9^2 \times 14$, $5^2 \times 14^2 \times 19$ and $9^3 \times 14^2 \times 19^2$ is:

- A. $52 \times 92 \times 142 \times 193$
- B. $53 \times 92 \times 142 \times 19$
- C. $52 \times 93 \times 14 \times 192$
- D. $53 \times 93 \times 142 \times 192$

**Q21 Mathematics**

The number 740705 is divisible by which of the following?

- A. 5
- B. 12
- C. 4
- D. 9

**Q24 Mathematics**

Find the volume (in cm^3 , rounded off to the nearest integer) of a sphere with radius 7 cm.

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

- A. 1436 cm^3
- B. 1442 cm^3
- C. 1437 cm^3
- D. 1446 cm^3

**Q25 Mathematics**

Simplify: $\frac{1}{\tan^2\theta} + \frac{\tan^2\theta}{\sin^2\theta} \times \cos^2\theta$

- A. $\sin^2\theta$
- B. $\text{cosec}^2\theta$
- C. $\sec^2\theta$
- D. 1

**Q22 Mathematics**

What sum of money (in ₹) will amount to ₹2,280 at 5% per annum simple interest in 4 years?

- A. ₹1,850
- B. ₹11,400
- C. ₹1,900
- D. ₹1,950

**Q23 Mathematics**

A man goes to Indore from Bhopal at a speed of 6 km/hr and returns to Bhopal at speed of 12 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

- A. 8
- B. 4
- C. 6
- D. 10



Q26 Mathematics

By selling an article at $\frac{2}{7}$ of its actual selling price, Manav incurs a loss of 24%.

If he sells it at 55% of its actual selling price, then the profit percentage is:

A. 47.6%

B. 48.7%

C. 46.3%



D. 46.9%

Q27 Mathematics

A can do a work in 9 days and B can do the same work in 18 days. If they work on it together for 5 days, then what fraction of the work is left?

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

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



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

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

Q28 Mathematics

Abhay and Bharat can complete a certain piece of work in 5 and 15 days, respectively. They started to work together, and after 2 days, Bharat left. In how many days will Abhay complete the remaining work?

A. $2\frac{1}{3}$



B. $4\frac{1}{3}$

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

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



Q29 Mathematics

Simplify the following.

$$2\left(\left(\frac{3}{2}\right)x^2 - 28x + 14\right) - 3(x^2 + 6x - 11)$$

A. $74x + 61$

B. $-74x - 61$

C. $-74x + 61$



D. $74x - 61$

Q30 Mathematics

ABCD is a trapezium in which $BC \parallel AD$ and $AC = CD$. If $\angle ABC = 45^\circ$ and $\angle BAC = 104^\circ$, then what is the measure of $\angle ACD$ (in degree)?

A. 117°

B. 118°



C. 130°

D. 114°



Mathematics

30 Questions · Answer Key

Q1 Mathematics

If the radius of the base of a right circular cylinder is decreased by 19% and its height is increased by 102%, then what is the percentage increase (closest integer) in its volume?

A. 12%

B. 26%

C. 14%

D. 33%



Q2 Mathematics

A sum of money triples itself at a certain rate of compound interest in 12 years. In how many years will it amount to 27 times of itself?

A. 36 years



B. 46 years

C. 41 years

D. 33 years

Q3 Mathematics

The average of first 166 even numbers is

A. 167



B. 166.5

C. 168

D. 167.5

Q4 Mathematics

A TV is listed at ₹80,000. A customer can either avail of a single discount of 28% or two successive discounts of 20% and 10%. Which discount option is better, and what is the monetary difference?

A. Single discount of 28% ; ₹1,005

B. Both the discount are the same ; ₹0



C. Single discount of 28% ; ₹1,500

D. Two successive discounts of 20% and 10% ; ₹1,600

Q5 Mathematics

The sum of two numbers is 84 and their L.C.M. is 245. What are the two numbers?

A. 54, 30

B. 47, 37

C. 49, 35



D. 42, 42

Q6 Mathematics

An amount of ₹552 is divided among three persons in the ratio of 19 : 11 : 18. The difference between the largest and the smallest shares (in ₹) in the distribution is:

A. 12

B. 105

C. 5

D. 92



Q7 Mathematics

Let A and B be two regular polygons. The sum of the interior angles of A is 1260° . Each interior angle of B exceeds its exterior angle by 90° . Find the sum of the number of sides of A and B.

A. 19

B. 15

C. 17



D. 18

Q8 Mathematics

₹87,400 were divided among A, B and C, such that 4 times the share of A = 9 times the share of B = 3 times the share of C. Find the share of A.

A. ₹31,278

B. ₹31,576

C. ₹31,464



D. ₹31,552



Q9 Mathematics

Which of the following ratios is the greatest?

- A. 35 : 77
- B. 38 : 83
- C. 47 : 67
- D. 50 : 62

**Q10 Mathematics**

What sum of money (in ₹) will amount to ₹2,160 at 5% per annum simple interest in 5 years?

- A. ₹8,640
- B. ₹1,678
- C. ₹1,728
- D. ₹1,778

**Q11 Mathematics**

Three pieces of timber that are 187 m, 102 m and 255 m long have to be divided into planks of the same length. What is the greatest possible length (in metres) of each plank?

- A. 17
- B. 13
- C. 19
- D. 11

**Q12 Mathematics**

A man goes to Nagpur from Visakhapatnam at a speed of 24 km/hr and returns to Visakhapatnam at speed of 40 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

- A. 30
- B. 28
- C. 25
- D. 29

**Q13 Mathematics**

Arun bought some pencils at the rate of ₹180 a dozen. He sold them for ₹18 each. His profit percentage is ____%.

- A. 22
- B. 20
- C. 18
- D. 24

**Q14 Mathematics**

In a store, the price of a bicycle is ₹4,300, with a trade discount of 12%. What is the amount of the discount?

- A. ₹516
- B. ₹548
- C. ₹524
- D. ₹486

**Q15 Mathematics**

The current population of a town is 16,362. It increases by 25% and 60% in two successive years but decreases by 50% in the third year. What is the population of the town at the end of the third year?

- A. 16,363
- B. 16,360
- C. 16,358
- D. 16,362

**Q16 Mathematics**

A number, when increased by 60%, gives 3630. The number is:

- A. 6806.25
- B. 2268.75
- C. 1134.375
- D. 4537.5

**Q17 Mathematics**

The value of $(3^0 + 3^{-2} + 3^{-1}) \times 27$ is ____.

- A. 3
- B. 32
- C. 23
- D. 39

**Q18 Mathematics**

In covering a distance of 162 km, Anmol takes 3 hours more than Nikhil. If Anmol doubles his speed, then he would take 6 hours less than Nikhil. Anmol's speed is:

- A. 4 km/hr
- B. 5 km/hr
- C. 3 km/hr
- D. 9 km/hr



Q19 Mathematics

Four times the present age of P exceeds the present age of Q by 46 years. After 7 years, three times Q's age will be 41 years less than seven times P's age at that time. What is the present age (in years) of Q?

A. 53

B. 64

C. 54



D. 56

Q20 Mathematics

The product of two positive numbers is 11045. If the first number is five times the second number, then the sum of the two numbers is:

A. 295

B. 289

C. 291

D. 282

**Q21 Mathematics**

What is the median of the following data?

24, 30, 40, 80, 15, 57, 78, 82, 39, 97, 82

A. 57



B. 57.5

C. 58

D. 56.5

Q22 Mathematics

Given that $17^{0.24} = x$, $17^{0.51} = y$ and $x^z = y^4$, then the value of z is close to:

A. 8.9

B. 8.58

C. 8.5



D. 10.44

Q23 Mathematics

If the longest diagonal of a cube measures 15 cm, then what is the total surface area (in sq. cm) of the cube?

A. 450 sq.cm



B. 540 sq.cm

C. $180\sqrt{3}$ sq.cm

D. 337.50 sq.cm

Q24 Mathematics

Pipe P can fill $\frac{2}{9}$ part of a tank in 20 hours, and pipe Q can fill $\frac{2}{5}$ part of the same tank in 18 hours.

Both P and Q were kept open for 3 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in 4 hours. Pipes P, Q and R together can fill the empty tank in:

A. 134 hours

B. 100 hours

C. 101 hours

D. 120 hours



Q25 Mathematics

If $X = \frac{\sin^2\theta}{1 + \cos\theta} - \frac{\sin\theta}{\cot\theta - \operatorname{cosec}\theta}$, then the value of $(X - 1)$ is:

A. $\sin^2\theta + \tan^2\theta$

B. $\cos^2\theta - \cot^2\theta$

C. $\sec^2\theta - \tan^2\theta$ ✓

D. $\operatorname{cosec}^2\theta + \cot^2\theta$

Q26 Mathematics

The value of $\sqrt{196} + \sqrt{0.0256} - \sqrt{7.29}$ is _____.

A. 12.2

B. 9.2

C. 8.11

D. 11.46 ✓

Q27 Mathematics

The value of $2^2 + \sqrt{8^2} - 3\sqrt{100} - 19$ is

A. -45

B. -44

C. -28

D. -37 ✓

Q28 Mathematics

A can do a work in 12 days and B can do the same work in 21 days. If they work on it together for 3 days, then what fraction of the work is left?

A. $\frac{15}{28}$

B. $\frac{17}{28}$ ✓

C. $\frac{25}{28}$

D. $\frac{27}{28}$



Q29 Mathematics

By selling an article at $\frac{4}{13}$ of its actual selling price, Hitesh incurs a loss of 22%. If he sells it at 60% of its actual selling price, then the profit percentage is:

A. 52.1%



B. 54.2%

C. 53.9%

D. 54.5%

Q30 Mathematics

Simplify: $4\left(\left(\frac{5}{4}\right)x^2 - 25x + 19\right) - 5(x^2 + 5x - 14)$

A. $-125x - 146$ B. $-125x + 146$ C. $125x - 146$ D. $125x + 146$ 

Mathematics

30 Questions · Answer Key

Q1 Mathematics

The average runs scored by a batsman in 23 matches is 42. In the next 10 matches, the batsman scored an average of 16 runs. Find his average runs scored (rounded off to two decimal places) in all the 33 matches.

- A. 33.12
- B. 36.12
- C. 35.12
- D. 34.12



Q2 Mathematics

Zeeshan travels 364 km at 91 km/hr, the next 441 km at 63 km/hr and the next 648 km at 81 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

- A. 69.95
- B. 76.47
- C. 72.94
- D. 79.14



Q3 Mathematics

If the radius of a sphere is halved, then find the ratio of volume of the original sphere with that of the new sphere.

- A. 16 : 1
- B. 8 : 1
- C. 4 : 1
- D. 2 : 1



Q4 Mathematics

The LCM of the numbers 3.9 and 0.169 is:

- A. 0.507
- B. 507
- C. 5.07
- D. 50.7



Q5 Mathematics

The number 869671195 is divisible by which of the following?

- A. 5
- B. 13
- C. 15
- D. 12



Q6 Mathematics

The HCF and the LCM of two numbers are 13 and 1170, respectively. If one of the numbers is 130, find the other one.

- A. 91
- B. 143
- C. 104
- D. 117



Q7 Mathematics

Given that $73^{0.51} = x$, $73^{0.73} = y$ and $x^z = y^{10}$, then the value of z is close to:

- A. 13.77
- B. 16.92
- C. 14.22
- D. 14.31



Q8 Mathematics

Find the difference between a discount of 32% on an item marked for ₹1,000 and two successive discounts of 20% and 12% on the same item.

- A. ₹24
- B. ₹26
- C. ₹22
- D. ₹20



Q9 Mathematics

If the third proportional of 26 and 52 be x , then what is the value of x ?

- A. 102
- B. 106
- C. 107
- D. 104

**Q10 Mathematics**

Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 6.5 years at 4% per annum rate of interest.

- A. 104
- B. 154
- C. 204
- D. 84

**Q11 Mathematics**

In $\triangle ABC$, $BD \perp AC$ at D and $\angle DBC = 55^\circ$. E is a point on BC such that $\angle CAE = 56^\circ$. What is the measure of $\angle AEB$?

- A. 90°
- B. 88°
- C. 85°
- D. 91°

**Q12 Mathematics**

The product of two consecutive natural numbers is 306. The greater of the two numbers is:

- A. 18
- B. 36
- C. 19
- D. 31

**Q13 Mathematics**

Aman and Pawan together invested ₹62,800 in a business. At the end of the year, out of a total profit of ₹11,600, Pawan's share was ₹2,900. What was the difference between their investments?

- A. ₹32,000
- B. ₹31,800
- C. ₹30,400
- D. ₹31,400

**Q14 Mathematics**

Maresh bought some pens at the rate of ₹180 a dozen. He sold them for ₹19 each. His profit percentage is _____.

(Round off your answer to two decimal places.)

- A. 28.67%
- B. 30.67%
- C. 26.67%
- D. 24.67%

**Q15 Mathematics**

An amount of ₹976 is divided among three persons in the ratio of 2 : 11 : 17. The difference between the largest and the smallest shares (in ₹) in the distribution is:

- A. 531
- B. 488
- C. 517
- D. 495

**Q16 Mathematics**

A number when increased by 100% gives 2770. The number is:

- A. 2770
- B. 4155
- C. 1385
- D. 692.5

**Q17 Mathematics**

What is the discount on a product with a list price of ₹3,000 and a discount rate of 25%?

- A. ₹900
- B. ₹1,000
- C. ₹750
- D. ₹700

**Q18 Mathematics**

A man goes to Nagpur from Visakhapatnam at a speed of 20 km/hr and returns to Visakhapatnam at speed of 30 km/hr, through the same route. What is his average speed (in km/hr) of the entire journey?

- A. 22
- B. 23
- C. 24
- D. 26



Q19 Mathematics

The current population of a town is 15,250. It increases by 25% and 60% in two successive years but decreases by 57% in the third year. What is the population of the town at the end of the third year?

A. 13,115



B. 13,118

C. 13,110

D. 13,111

Q20 Mathematics

The average price of three items of furniture is ₹16,035. If their prices are in the ratio 3 : 5 : 7, the price of the cheapest item (in ₹) is:

A. 7,483

B. 9,621



C. 5,345

D. 3,207

Q21 Mathematics

If the interest earned during the 2nd year on a certain sum is ₹5,916, and the rate of interest is 20% per annum compounded annually, then the sum is:

A. ₹25,540

B. ₹24,870

C. ₹24,650



D. ₹23,995

Q22 Mathematics

9 men can complete a piece of work in 16 days, while 5 women can do it in 18 days. In how many days can 2 women and 4 men complete the work?

A. 16 days

B. 18 days

C. 15 days

D. 20 days

**Q23 Mathematics**

8 years ago, the age of a father was 11 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

A. 7

B. 2

C. 3



D. 4

Q24 Mathematics

A can lay railway track between two given stations in 17 days and B can do the same job in 12 days. With the help of C, they did the job in 2 days only. Then, C alone can do the job in

A. $2\frac{58}{73}$ days



B. $10\frac{58}{73}$ days

C. $7\frac{58}{73}$ days

D. $6\frac{58}{73}$ days



Q25 Mathematics

A cylindrical rod has an outer curved surface area of 7500 cm^2 . If the length of the rod is 87 cm, then the outer radius (in cm) of the rod, correct to two places of decimal, is:

(Take $\pi = \frac{22}{7}$)

A. 16.68

B. 13.71



C. 13.96

D. 16.52

Q26 Mathematics

By selling an article at $\frac{2}{5}$ of its actual selling price, Aman incurs a loss of 24%.

If he sells it at 81% of its actual selling price, then the profit percentage is:

A. 55.7%

B. 53.9%



C. 55.9%

D. 55.5%

Q27 Mathematics

Simplify: $3\left(\left(\frac{6}{3}\right)x^2 - 23x + 18\right) - 6(x^2 + 4x - 15)$

A. $-93x - 144$

B. $93x + 144$

C. $93x - 144$

D. $-93x + 144$

**Q28 Mathematics**

The value of $\frac{2}{5} + \left(\frac{1}{1 + \frac{4}{9}}\right) - \frac{4}{5}$ is

A. $\frac{20}{73}$

B. $\frac{12}{59}$

C. $\frac{19}{65}$



D. $\frac{24}{67}$



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Q29 Mathematics

Find the value of $\frac{1}{\sec^2 A} + \frac{1}{1 + \cot^2 A}$.

A. 0

B. 1

C. $\tan^2 A$ D. $\frac{1}{2}$ **Q30** Mathematics

Find the value of $14^{-23} \times 25^{-23} \times 15^{-23}$.

A. $\frac{1}{5214^{23}}$ B. $\frac{1}{5250^{23}}$ C. $\frac{1}{5257^{23}}$ D. $\frac{1}{5243^{23}}$ 

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