

RRB Technician Grade III 2025

Technician Grade III · CEN 02/2025 · Mathematics · Question Paper Compilation

English

All 9 Shifts (Sets) · Mathematics Section · Official Answer Key

About this Compilation

This booklet compiles all **9 shift papers** of the **RRB Technician Grade III 2025** examination (CEN 02/2025) 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.

More from QMaths

Check your marks, normalized score and zone-wise rank free at rank.qmaths.in. Master English vocabulary with the **Blackbook** app.



Blackbook:
English Vocabulary



Toppers' Choice, *Blackbook of English Vocabulary*, Now available in App format : DOWNLOAD NOW

Index — All Sets (click to open)

Set 1 06 Mar 2026 9:00 AM - 10:30 AM	Set 6 09 Mar 2026 4:30 PM - 6:00 PM
Set 2 06 Mar 2026 12:45 PM - 2:15 PM	Set 7 10 Mar 2026 9:00 AM - 10:30 AM
Set 3 06 Mar 2026 4:30 PM - 6:00 PM	Set 8 10 Mar 2026 12:45 PM - 2:15 PM
Set 4 09 Mar 2026 9:00 AM - 10:30 AM	Set 9 10 Mar 2026 4:30 PM - 6:00 PM
Set 5 09 Mar 2026 12:45 PM - 2:15 PM	

Mathematics

25 Questions • Answer Key

Q1 Mathematics

If 15 workers can build a wall in 10 days, how many workers are needed to build it in 6 days?

A. 20

B. 26

C. 22

D. 25



Q2 Mathematics

Find the product of the common prime factors of the numbers 1950, 1560 and 2340.

A. 360

B. 480

C. 390

D. 520



Q3 Mathematics

The sum of the present ages of Sharad and Adarsh is 36 years. After 2 years from now, Sharad's age will be three times that of Adarsh. Sharad's present age (in years) is:

A. 28

B. 24

C. 37

D. 26



Q4 Mathematics

A can finish a work in 5 days and B can do the same work in 50 days. B worked alone for 10 days and left the job. In how many days can A alone finish the remaining work?

A. 4.5

B. 3

C. 4

D. 3.5



Q5 Mathematics

The value of a machine is first depreciated by 20%. It is then appreciated by 25% and finally depreciated by 10%. Find the overall percentage change in its value.

A. 5% decrease

B. 12% decrease

C. 8% decrease

D. 10% decrease



Q6 Mathematics

For a given data, the mean is 48.5 and the median is 44. The mode of the data is:

A. 25

B. 42

C. 35

D. 32



Q7 Mathematics

If the lateral surface area of a cylinder is 140.1 cm^2 and its height is 3 cm, then find its volume. (Use $\pi = 3.14$ and round off to two decimal places.)

A. 559.99 cm³B. 570.58 cm³C. 520.91 cm³D. 562.32 cm³

Q8 Mathematics

Two trains of lengths 120 m and 180 m are running in opposite directions at speeds of 60 km/h and 75 km/h, respectively. In how many seconds will they completely cross each other?

A. 9 seconds

B. 8 seconds

C. 10 seconds

D. 11 seconds



Q9 Mathematics

During a sale 50% of the goods are sold at 40% profit, 40% of the remaining goods are sold at 13% profit and the still remaining goods are sold at a loss of 32%. If there is an overall profit of $x\%$, then what is the value of x ?

A. 13



B. 14

C. 13.5

D. 12.5

Q10 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 ₹179, then what is the list price (in ₹) of the fan?

A. 12,213

B. 12,166

C. 12,172



D. 12,247

Q11 Mathematics

The average of three numbers is 20. If the two numbers are 11 and 22, respectively, then the third number is:

A. 26

B. 28

C. 27



D. 29

Q12 Mathematics

If a sum of ₹8000 becomes thrice of itself after 8 years on compound interest, then how much will it become after 24 years?

A. ₹253000

B. ₹236000

C. ₹216000



D. ₹206000

Q13 Mathematics

The length of one of the two parallel sides of a trapezium is 8 cm, while the length of the other side of this pair of parallel sides is equal to the distance between this pair of parallel sides. If the area of the trapezium is 120 cm^2 , then what is the distance (in cm) between the said pair of parallel sides?

A. 20

B. 12



C. 15

D. 10

Q14 Mathematics

If the surface area of a sphere is 314 cm^2 , find its radius. (Take $\pi = 3.14$)

A. 50 cm

B. 0.5 cm

C. 5 cm



D. 0.05 cm

Q15 Mathematics

When one-third of a number is increased by 87, the result is 107. Find the sum of the digits of the original number.

A. 8

B. 3

C. 6



D. 5

Q16 Mathematics

A, B, C, and D can do a piece of work in 12, 15, 20, and 30 days, respectively. All start together, but D leaves after 2 days, C leaves 3 days before the completion, and B leaves 2 days before the completion. Determine the total time required to complete the work.

A. 8 days 6 hours

B. 5 days 10 hours

C. 6 days 2 hours



D. 5 days 20 hours



Q17 Mathematics

A classroom has 46 boys and 36 girls. If the number of girls is increased successively by 25% followed by another 20%, by how many will the number of girls exceed the number of boys?

A. 12

B. 8 

C. 6

D. 10

Q18 Mathematics

A person borrows ₹10,000 for 3 years at 5% per annum simple interest. He immediately lends it to another person at $8\frac{1}{4}\%$ per annum simple interest for 3 years. What is his gain (in ₹) in the transaction per year?

A. 400

B. 325 

C. 375

D. 450

Q19 Mathematics

The value of $4 + \tan^2\theta + \cot^2\theta - \sec^2\theta \operatorname{cosec}^2\theta$ is:

A. 4

B. 0

C. -2

D. 2 **Q20 Mathematics**

If a number is added to each of the numbers 16, 20 and 30, then the resulting numbers are in the continued proportion. Find the mean proportional between the largest and smallest of the resulting numbers.

A. $\frac{26}{9}$ B. $\frac{50}{9}$ C. $\frac{20}{3}$ D. $\frac{40}{3}$ 

Q21 Mathematics**Simplify:**

$$8 \times 8 + 6 \times 6 + [6 \times \{4 \div 2 \times (3 \text{ of } 2)\} - \{36 \div (6 \times 3) + (8 \times 3)\}] \div 2$$

A. 123



B. 93

C. 153

D. 73

Q22 MathematicsSimplify $(5z-12y)^2 + (12z+5y)^2 - 144z^2$.A. $24z^2 + 171y^2$ B. $31z^2 + 161y^2$ C. $32z^2 + 170y^2$ D. $25z^2 + 169y^2$ **Q23 Mathematics**Find the value of $36 - [10 - 3 \{14 \div 2 - (10 \div 2 \times 3 - 4 + 7)\}]$.

A. 7

B. -5

C. 5

D. -7

**Q24 Mathematics**

If x is the third proportional to 2 and y, and y is the third proportional to x and 18, then what is the value of y?

A. $5\sqrt[3]{3}$ B. $3\sqrt[3]{3}$ C. $6\sqrt[3]{3}$ D. $4\sqrt[3]{3}$ **Q25 Mathematics**What is the decimal form of $\frac{7}{2} + 32.5 + 1.245 + \frac{3}{4}$?

A. 32.125

B. 35.005

C. 39.778

D. 37.995



Mathematics

25 Questions • Answer Key

Q1 Mathematics

Two numbers are in the ratio of 4 : 5, and their HCF is 16. Find the LCM of the two numbers.

A. 340

B. 360

C. 380

D. 320 ✓

Q2 Mathematics

Fourteen years from now, the sum of A's and B's ages will be twice the sum of their current ages. If A is currently 8 years older than B, what is A's present age?

A. 16

B. 12

C. 18 ✓

D. 10

Q3 Mathematics

Three workers A, B, C can finish a job in 10, 15, and 20 hours respectively. A and B start; after 2 hours, C joins and they finish the remaining work in t more hours. What is the value of t ? (Rounded off to the nearest integer.)

A. 3 ✓

B. 6

C. 4

D. 5

Q4 Mathematics

Anisha borrowed ₹28,260 from her friend at 9% per annum, simple interest. She returned the amount after 9 months. How much interest did she pay?

A. ₹ 1948.20

B. ₹ 1907.55 ✓

C. ₹ 1970.75

D. ₹ 1933.25

Q5 Mathematics

A cylindrical printing drum of length 2.1 m makes 350 complete revolutions and prints 4158 m^2 of fabric. What is the radius of the drum? (Take $\pi = 22/7$)

A. 70 cm

B. 90 cm ✓

C. 60 cm

D. 80 cm

Q6 Mathematics

One pipe can fill the tank in 20 min, while another pipe can empty the completely filled tank in 45 min. If both the pipes are operated together on empty tank, how long (in min) will it take to fill one-fourth of the tank?

A. 9 ✓

B. 36

C. 27

D. 18

Q7 Mathematics

If a book costs ₹300 and its price is increased by 5%, by how much the new price of the book after the increase is more than the original price?

A. ₹15 ✓

B. ₹10

C. ₹20

D. ₹25

Q8 Mathematics

The lengths of two trains starting from stations P and Q are in the ratio 3 : 2. When they run in opposite directions at speeds of 54 km/h and 72 km/h, respectively, they cross each other in 30 seconds. The train starting from P crosses a bridge in 90 seconds. Find the length of the bridge.

A. 720 meters ✓

B. 620 meters

C. 780 meters

D. 740 meters



Q9 Mathematics

Anusha starts a business with ₹55,000 and after 7 months, Minal joins Anusha as her partner. After a year, the profit is divided in the ratio 8 : 3. What is Minal's contribution in the capital?

A. ₹48,745

B. ₹50,755

C. ₹49,500



D. ₹49,410

Q10 Mathematics

The average age of a husband and wife at the time of their marriage was 28 years. Their daughter was born two years after their marriage. If the present average age of all three family members is 24 years, how many years ago from now, did the couple get married?

A. 4

B. 6



C. 7

D. 8

Q11 Mathematics

A person X invests ₹12,000 for 12 months and person Y invests ₹18,000 but withdraws his investment after 6 months. If the total profit earned on their investment is ₹25,200, what is X's share in the profit?

A. ₹16,800

B. ₹15,700

C. ₹14,400



D. ₹13,900

Q12 Mathematics

A dealer buys two articles X and Y for ₹1,300 each. He marks each of them at the same price. He sells X by giving two successive discounts of 84% and 25% and still earns ₹734 as profit. If he sells Y at a single discount of 87%, then what is the profit percentage on Y?

A. 68%

B. 69%

C. 68.5%

D. 69.5%

**Q13 Mathematics**

What sum of money (in ₹) will yield ₹720 as simple interest in 2 years at 5% per annum?

A. 6700

B. 7200



C. 7600

D. 7400

Q14 Mathematics

What is the mode of the following data?

51, 48, 50, 55, 44, 52, 45, 52, 44, 49, 55, 54, 44, 54, 43, 45, 55, 47

A. 45

B. 55



C. 44

D. 54

Q15 Mathematics

A student scored 84% of the maximum marks in an exam and passed by 62 marks. But when he scored 45% of the marks in the same exam, he failed by 35.5 marks. Find the maximum marks of the exam.

A. 265

B. 250



C. 225

D. 240

Q16 Mathematics

When one-third of a number is increased by 37, the result is 51. Find the sum of the digits of the original number.

A. 6



B. 8

C. 3

D. 9

Q17 Mathematics

A shopkeeper sold a book at a loss of 6%. If the selling price had been increased by ₹960, there would have been a gain of 19%. What was the cost price (in ₹) of the book?

A. 3845

B. 3835

C. 3850

D. 3840



Q18 Mathematics

The area of a square is 9 cm^2 . Its perimeter is equal to the perimeter of a regular hexagon. What is the area (in cm^2) of the hexagon?

A. $6\sqrt{3}$



B. 32

C. 40

D. $42\sqrt{3}$

Q19 Mathematics

If $10\cos^2\theta + 7\sin^2\theta = 7$, where $0^\circ \leq \theta \leq 90^\circ$, then the value of $(\sin\theta + \cos\theta)$ is:

A. -1

B. 1



C. 0

D. 2

Q20 Mathematics

Which of the following numbers DOES NOT have exactly four distinct positive divisors?

A. $p \cdot q$ for distinct primes p and q

B. p^2 for prime p



C. p^3 for prime p

D. q^3 for prime q

Q21 Mathematics

If $x = \frac{\sqrt{5} + 2}{\sqrt{5} - 2}$ and $y = \frac{\sqrt{5} - 2}{\sqrt{5} + 2}$, then find the value of $x^2 + y^2$.

A. 312

B. 311

C. 302

D. 322

**Q22 Mathematics**

If $x^2 + \frac{1}{x^2} = 16$ and $x \neq 0$, then what is the value of $x^4 + \frac{1}{x^4}$?

A. 260

B. 252

C. 258

D. 254



Q23 Mathematics

Which of the following is not a property of triangles?

- (i) The sum of three angles of a triangle is always 180° .
- (ii) Area of a triangle is defined as $\frac{1}{3} \times \text{base} \times \text{length of altitude}$.
- (iii) The perimeter of a triangle is the sum of lengths of all three sides.
- (iv) The exterior angle of a triangle is equal to the sum of its interior opposite angles.

A. (iv)

B. (i)

C. (ii)



D. (iii)

Q24 Mathematics

Simplify: $[(36 + 4 \times (3 + 2 \times (5 - 2))) \div (6 + 3)] + [(40 - (6 + 3 \times 2)) + (8 \times 2 - 6)]$

A. 42

B. 52

C. 46



D. 38

Q25 Mathematics

Simplify: $\left(\frac{5}{6} + \frac{1}{3}\right) \div \left(\frac{2}{5} + 0.3\right) \times 0.5 + \frac{5}{6}$

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

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



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

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



Mathematics

25 Questions • Answer Key

Q1 Mathematics

A train 240 meters long crosses a bridge 420 meters long in 22 seconds. What is the speed of the train in km/h?

A. 108 km/h



B. 104 km/h

C. 112 km/h

D. 116 km/h

Q2 Mathematics

The average of three numbers is 20. If two numbers are 11 and 21, respectively, then the third number is:

A. 27

B. 28



C. 30

D. 29

Q3 Mathematics

Five years ago from now, the sum of the ages of John and his sister Jane was 25 years. If John is now twice as old as he was ten years ago, find the difference between their present ages (in years).

A. 7

B. 8

C. 6

D. 5



Q4 Mathematics

What sum of money (in ₹) will yield ₹700 as simple interest in 2 years at 10% per annum?

A. 3500



B. 3000

C. 3900

D. 3700

Q5 Mathematics

In an election with four candidates, 60% of all registered voters voted. Candidate X got 40% of the cast votes. The rest were split equally among the other three candidates. If Candidate X received 480 more votes than each of the others, how many registered voters were there?

A. 4000



B. 6200

C. 5600

D. 4800

Q6 Mathematics

Simplify $(2pq + 11q)^2 - (2pq - 11q)^2$.

A. $88pq^2$ B. $44pq^2$ C. $88p^2q$ D. $44p^2q^2$

Q7 Mathematics

Varun buys mangoes at the rate of 3 kg for ₹15 and sells them at 5 kg for ₹50. To earn ₹125 as profit, what quantity of mangoes (in kg) must he sell?

A. 27

B. 26

C. 28

D. 25



Q8 Mathematics

If $a : b = c : x$, then find x when $a = 12$, $b = 18$, and $c = 27$.

A. 40.5



B. 45.5

C. 42.5

D. 43.5



Q9 Mathematics

If a regular polygon has an interior angle of 156° , then find the sum of its 7 exterior angles.

A. 168°



B. 172°

C. 165°

D. 156°

Q10 Mathematics

A garden walkway is to be paved with 2,500 rhombus-shaped stone slabs, each having diagonals of 50 cm and 35 cm. What is the total cost of polishing the walkway if the rate is ₹5 per square meter. Also, if an additional 6.25 m^2 of area is added so that the walkway becomes a square-shaped courtyard, what will be the side of this square courtyard?

A. ₹1109.25, 16 meters

B. ₹1319.45, 19 meters

C. ₹1222.15, 17 meters

D. ₹1093.75, 15 meters

**Q11 Mathematics**

If the mean of a distribution is 78 and the median is 61, then the value of mode is:

A. 27



B. 31.5

C. 50

D. 45

Q12 Mathematics

The number of tourists visiting a fort rose by 30% in summer and then dropped by 35% in monsoon. What is the overall percentage change?

A. 15.5% increase

B. 15.5% decrease



C. 12.5% increase

D. 12.5% decrease

Q13 Mathematics

When one-third of a number is increased by 55, the result is 77. Find the sum of the digits of the original number.

A. 15

B. 13

C. 12



D. 10

Q14 Mathematics

A can do a certain work at the same time in which B and C together can do it. If A and B together could do it in 6 days and C alone in 42 days, then B alone could do it in _____ days.

A. 28

B. 42

C. 14



D. 56

Q15 Mathematics

Find the number of pairs of coprime numbers between 11 and 19 (both inclusive).

A. 29

B. 30

C. 28



D. 26

Q16 Mathematics

A can complete the work in 16 days and B can complete it in 24 days. They work together for 5 days, then A leaves. How many more days will B take to complete the remaining work?

A. 11.5 days



B. 10.5 days

C. 13.5 days

D. 12.5 days

Q17 Mathematics

Smita borrowed ₹14,750 from her friend at a simple interest rate of 8% per annum. She repaid the amount after 6 months. How much did she pay in total?

A. ₹ 15355

B. ₹ 15375

C. ₹ 15340



D. ₹ 15390



Q18 Mathematics

The prices of articles of type P, Q and R are ₹280, ₹180 and ₹105, respectively. Govind buys articles of the three types in the ratio 3 : 4 : 7 for a total of ₹6,885. How many articles of type Q did he purchase?

A. 12



B. 9

C. 20

D. 18

Q19 Mathematics

A dealer buys two articles X and Y for ₹2,000 each. He marks each of them at the same price. He sells X by giving two successive discounts of 28% and 90% and still earns ₹322 as profit. If he sells Y at a single discount of 88%, then what is the profit percentage on Y?

A. 93%

B. 93.5%



C. 92.5%

D. 92%

Q20 Mathematics

Find the highest common factor (HCF) of the two numbers 64 and 148.

A. 6

B. 2

C. 3

D. 4

**Q21 Mathematics**

Simplify: $\frac{2^{n+3} - 2 \times 2^n}{2 \times 2^{n+2}}$

A. $\frac{3}{4}$ B. $\frac{3}{2}$ C. $\frac{2}{3}$ D. $\frac{3}{8}$ **Q22 Mathematics**

If $\frac{(\sin^2\theta - 3\sin\theta + 2)}{\cos^2\theta} = 1$, where $0^\circ < \theta < 90^\circ$, then the value of $\left(\cot\frac{3}{2}\theta + \sin 3\theta\right)$ is:

A. -1

B. 0

C. 1

D. 2



Q23 Mathematics**Simplify:**

$$\frac{1}{2} \text{ of } \left(\frac{1}{2} \div \frac{1}{2} \text{ of } \frac{1}{2} + \frac{1}{2} \right) - \frac{1}{2}$$

A. 0.5

B. 1

C. 0.75



D. 0.25

Q24 Mathematics**Simplify:**

$$[\{(96 \div (4 \times 4)) + (36 \div (9 \times 3))\} + \{(14 \times 2 \div 4) + (18 \div (3 \times 3))\}]$$

A. $\frac{59}{3}$ B. $\frac{69}{3}$ C. $\frac{39}{3}$ D. $\frac{49}{3}$ **Q25** Mathematics

The volume of a cylinder having diameter 20 cm and height 42 cm is:

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

A. 13202 cm³B. 13200 cm³C. 13196 cm³D. 13210 cm³

Mathematics

25 Questions • Answer Key

Q1 Mathematics

A and B can complete a work in 12 days and 6 days, respectively. They started doing the work together but after 2 days, B had to leave, and A completed the remaining work alone. The remaining work was completed in _____ days.

A. 6



B. 9

C. 8

D. 10

Q2 Mathematics

If $8 : 12 = 20 : x$, find the value of x .

A. 34

B. 32

C. 28

D. 30



Q3 Mathematics

In the expansion of $(x + 9)(x - 6)(x + 5)$, what is the coefficient of x ?

A. -39



B. 33

C. -35

D. 30

Q4 Mathematics

Ramesh deposits ₹24,000 in his account, which pays an annual interest rate of 12% compounded quarterly. Calculate the total amount in his account after six months

A. ₹25,937

B. ₹25,461.60



C. ₹25,431

D. ₹25,678.60

Q5 Mathematics

In a test, B got 50 marks while A got 80 marks out of 120 maximum marks. What percentage of A's marks were B's marks?

A. 120%

B. 66.67%

C. 62.5%



D. 160%

Q6 Mathematics

Kirti starts a business with ₹35,000 and after 3 months, Vaishnavi joins Kirti as her partner. After a year, the profit is divided in the ratio 7 : 6. What is Vaishnavi's contribution in the capital?

A. ₹40,000



B. ₹39,255

C. ₹38,240

D. ₹41,020

Q7 Mathematics

A student scored 91% of the maximum marks in an exam and passed by 187 marks. But when he scored 36% of the marks in the same exam, he failed by 60.5 marks. Find the maximum marks of the exam.

A. 400

B. 465

C. 425

D. 450



Q8 Mathematics

The difference between the present ages of Ayushi and Nidhi is 14 years. Five years ago from now, the sum of their ages was 60 years. If Ayushi is older than Nidhi, find Nidhi's present age (in years).

A. 28



B. 27

C. 23

D. 31



Q9 Mathematics

What sum of money (in ₹) will yield ₹720 as simple interest in 2 years at 10% per annum?

- A. 4000
- B. 3600
- C. 3800
- D. 3100

**Q10 Mathematics**

A customer purchases a laptop that has a marked price of ₹50,000. The store offers a 10% discount on the laptop. In addition, there is a festival offer that provides an extra 12% discount on the already discounted price. If the customer pays with a credit card and gets an additional 5% cashback on the final price, then how much does the customer effectively pay?

- A. ₹37,490
- B. ₹37,560
- C. ₹37,430
- D. ₹37,620

**Q11 Mathematics**

The mean of a data is 19 and its median is 51. The mode (using empirical relation) of the data is:

- A. 173
- B. 115
- C. 130
- D. 30

**Q12 Mathematics**

The difference between the present ages of Lata and Smita is 84 years. Five years ago from now, the sum of their ages was 92 years. If Lata is older than Smita, find Smita's present age (in years).

- A. 9
- B. 2
- C. 19
- D. 12

**Q13 Mathematics**

What is the mode of the following data?

52, 44, 47, 50, 45, 40, 43, 53, 53, 45, 52, 50, 52, 52, 44, 47, 54, 50

- A. 52
- B. 44
- C. 47
- D. 50

**Q14 Mathematics**

If the number 62A4 is divisible by 4, then the least possible value of A can be:

- A. 2
- B. 6
- C. 4
- D. 0

**Q15 Mathematics**

During a sale, 40% of the goods are sold at a 17% profit; 25% of the remaining goods are sold at a 22% profit; and the rest are sold at a 10% loss. Assuming all goods have the same cost price, what is the overall profit percentage?

- A. 6.2%
- B. 6.8%
- C. 5.6%
- D. 5.8%

**Q16 Mathematics**

A train moving at 72 km/h overtakes another train, 180 m long, running in the same direction at 36 km/h in 27 seconds. Find the length of the faster train.

- A. 100 m
- B. 80 m
- C. 110 m
- D. 90 m

**Q17 Mathematics**

Two numbers have HCF 7 and LCM 84. If one number is 21, find the other.

- A. 28
- B. 42
- C. 24
- D. 35



Q18 Mathematics

The capacity of a cylindrical tank is 55440 cm^3 . If its base radius is 14 cm, then find the total surface area of the tank.

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

A. 9052 cm²

B. 9152 cm² ✓

C. 9352 cm²

D. 9252 cm²

Q19 Mathematics

In triangle PQR, the angle bisector of $\angle P$ cuts QR at A. Find the length of PR, if the lengths of PQ, QA and AR are 12 cm, 4.2 cm and 3.8 cm, respectively. (Round off to one decimal place).

A. 11.4 cm

B. 8.2 cm

C. 7.8 cm

D. 10.9 cm ✓

Q20 Mathematics

Simplify:

$[(18 \div 9 \times 3) \text{ of } \{((18 \div (6 \times 2)) \div 3) + (16 \div (5 + 3 - 6))\}]$

A. 51 ✓

B. 34

C. 17

D. 68

Q21 Mathematics

Simplify: $2\frac{1}{2} + 1\frac{3}{4} - 1\frac{1}{4}$

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

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

C. $3\frac{1}{4}$

D. 3 ✓



Q22 Mathematics

Pipe A can fill a tank in 10 hours; pipe B can fill it in 12 hours, and pipe C can empty it in 15 hours. All three pipes are opened together, but after 4 hours pipe C is closed. Find the total time taken to fill the empty tank.

A. $6\frac{10}{11}$ hours



B. $6\frac{5}{11}$ hours

C. $5\frac{10}{11}$ hours

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

Q23 Mathematics

What is the value of $\sec^2(60^\circ) - 1$?

A. 0

B. 1

C. 2

D. 3

**Q24 Mathematics**

The area of a square is 225 cm^2 . Its perimeter is equal to the perimeter of a regular hexagon. What is the area (in cm^2) of the hexagon?

A. $136\sqrt{3}$

B. 128

C. 184

D. $150\sqrt{3}$

**Q25 Mathematics**

If $3^{2a-b} = 3^{a+b} = \sqrt{27}$, find the value of b .

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

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

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



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



Mathematics

25 Questions • Answer Key

Q1 Mathematics

Find the sum of 8 exterior angles of a 24-sided regular polygon.

A. 135° B. 140° C. 115° D. 120° ✓

Q2 Mathematics

Calculate the simple interest if the principal amount is ₹75,000, the rate is 5%, and the time is 5 years.

A. ₹18,750 ✓

B. ₹3750

C. ₹16,870

D. ₹7,850

Q3 Mathematics

A and B together can complete a task in 10 days, B and C in 12 days and A and C in 15 days. How long will A, B and C take to complete the task working together?

A. 7 days

B. 8 days ✓

C. 10 days

D. 9 days

Q4 Mathematics

A family's monthly income increased by 15%. They increased their monthly expenditure on food by 10% and on rent by 20%. If their initial monthly expenditure on food was ₹12,000 and on rent was ₹8,000, and their initial monthly savings were ₹15,000, what are their new monthly savings? (Assume that there is no other expenditure.)

A. ₹25,000

B. ₹15,000

C. ₹17,450 ✓

D. ₹18,650

Q5 Mathematics

The sum of 6 numbers is 240. Find their average.

A. 39

B. 38

C. 40 ✓

D. 41

Q6 Mathematics

Naveena's monthly income is ₹84,000. She spends 25% of his income on house rent, 20% on groceries, 15% on other household expenses, and saves the remaining amount. How much money (in ₹) does she save every month?

A. 33,600 ✓

B. 32,600

C. 32,000

D. 33,000

Q7 Mathematics

During a sale, 60% of the goods are sold at a profit of 21%. Of the remaining goods, 40% are sold at a profit of 46%, and the rest are sold at a loss of 29%. If the overall profit is $x\%$, then what is the value of x ?

A. 3.5

B. 13 ✓

C. 9.5

D. 3

Q8 Mathematics

If the lateral surface area of a cylinder is 775.8 cm^2 and its height is 24 cm, then find its volume. (Use $\pi = 3.14$ and round off to two decimal places.)

A. 2016.67 cm^3 B. 1984.78 cm^3 C. 1996.63 cm^3 ✓D. 1962.74 cm^3 

Q9 Mathematics

When one-third of a number is increased by 55, the result is 83. Find the sum of the digits of the original number.

A. 12



B. 9

C. 14

D. 13

Q10 Mathematics

What sum of money (in ₹) will yield ₹720 as simple interest in 2 years at 6% per annum?

A. 6400

B. 6000



C. 5500

D. 6200

Q11 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 ₹134, then what is the list price (in ₹) of the fan?

A. 8,987

B. 9,112



C. 8,851

D. 9,135

Q12 Mathematics

A 200 m long train passes a man standing on a platform in 10 seconds. How long will it take to cross another 350 m long train running at 60 km/h in the opposite direction?

A. 12 seconds

B. 15 seconds



C. 16 seconds

D. 14 seconds

Q13 Mathematics

If the median and the mode are given as 65 and 60, respectively, find the mean.

A. 68

B. 70

C. 62.5

D. 67.5

**Q14 Mathematics**

A and B can complete a work in 12 days and 8 days, respectively. They started doing the work together but after 2 days, B had to leave, and A completed the remaining work alone. The whole work was completed in _____ days.

A. 9



B. 7

C. 10

D. 8

Q15 Mathematics

Find the fourth proportional to 3.5, 7.5, and 6.3.

A. 12.5

B. 11.5

C. 14.5

D. 13.5

**Q16 Mathematics**

If 6 machines produce 120 items in 8 hours, how many items can 9 machines produce in 4 hours at the same rate?

A. 60

B. 80

C. 120

D. 90

**Q17 Mathematics**

The sum of the present ages of Lokesh and Tareh is 24 years. After 2 years, Lokesh's age will be three times that of Tareh. Lokesh's present age (in years) is:

A. 19



B. 12

C. 22

D. 17

Q18 Mathematics

Six cubes each of side 4 cm, are placed adjacent to each other. Find the volume of the cuboid so formed.

A. 64 cm³

B. 512 cm³

C. 256 cm³

D. 384 cm³



Q19 Mathematics

Kirti starts a business with ₹27,000 and after 7 months, Vaishnavi joins Kirti as her partner. After a year, the profit is divided in the ratio 8 : 9. What is Vaishnavi's contribution in the capital?

A. ₹72,750

B. ₹73,360

C. ₹72,900



D. ₹72,875

Q20 Mathematics

The sum of the prime factors of 84 is:

A. 14

B. 18

C. 12



D. 15

Q21 Mathematics

Simplify: $\frac{\sqrt{16x^4 - 72x^2y^2 + 81y^4}}{\sqrt{4x^2 - 12xy + 9y^2}} - (2x - 3y)$, given that $2x > 3y$.

A. $4x^2$ B. $6y^2$ C. $4x$ D. $6y$ **Q22 Mathematics**

Simplify: $\frac{[5 \text{ of } (2 + 4)] - \{6^2 \div 3\} + 2}{3 \text{ of } (5 - 2) \div 9}$

A. 16

B. 20



C. 22

D. 18

Q23 Mathematics

Simplify:

$[(120 - 24 \div (4 + 2)) \times 2 - (50 \div 5 + 6)] + [(18 + 12 \times 2 - 8) - (9 \div 3 + 5)]$

A. 262

B. 242



C. 252

D. 232



Q24 Mathematics

In ΔPQR , $\angle Q = 90^\circ$. If $\tan R = \frac{1}{3}$,

then the value of $1 + \frac{\sec P(3\cos R - \sin P)}{\operatorname{cosec} R(4\sin R - \cos P)}$ is:

A. 5

B. 6

C. 3



D. 7

Q25 Mathematics

Simplify:

$$\frac{2}{5} \text{ of } \left(\left(\frac{3}{4} \div 0.25 \right) + \frac{1}{2} \right) - \frac{1}{3}$$

A. $\frac{16}{15}$



B. $\frac{14}{15}$

C. $\frac{17}{15}$

D. $\frac{13}{15}$



Mathematics

25 Questions • Answer Key

Q1 Mathematics

Two numbers are in the ratio of 4 : 9. If their sum is 26, then find the mean proportional between them.

A. 12



B. 11

C. 10

D. 14

Q2 Mathematics

How many positive integers less than 30 are co-prime to 30?

A. 6

B. 7

C. 8



D. 5

Q3 Mathematics

What sum of money (in ₹) will yield ₹740 as simple interest in 2 years at 5% per annum?

A. 7800

B. 6900

C. 7400



D. 7600

Q4 Mathematics

A car travels 120 km at an unknown speed x km/h and then returns at $(x + 20)$ km/h. The average speed for the whole journey is 60 km/h. Find the value of x . (Round to one decimal place.)

A. 52.4

B. 54.5

C. 50.2

D. 51.6



Q5 Mathematics

A shopkeeper sold a book at a loss of 7%. If the selling price had been increased by ₹120, there would have been a gain of 17%. What was the cost price (in ₹) of the book?

A. 505

B. 510

C. 495

D. 500



Q6 Mathematics

The difference between the ages of Sakshi and Priya is 37 years. Five years ago from now, the sum of their ages was 95 years. If Sakshi is older than Priya, find Priya's present age (in years).

A. 24

B. 28

C. 43

D. 34



Q7 Mathematics

The value of $11^3 - 8^3$ is:

A. 806

B. 819



C. 759

D. 866

Q8 Mathematics

What is the mode of the following data?

40, 53, 47, 55, 42, 46, 50, 42, 54, 49, 40, 54, 43, 40, 44, 55, 49, 53

A. 53

B. 55

C. 40



D. 49



Q9 Mathematics

One pipe can fill the tank in 18 min, while another pipe can empty the completely filled tank in 72 min. If both the pipes are operated together on empty tank, how long (in min) will it take to fill two-third of the tank?

A. 48

B. 64

C. 16



D. 32

Q10 Mathematics

A dealer buys two articles X and Y for ₹1,200 each. He marks each of them at the same price. He sells X by giving two successive discounts of 80% and 44% and still earns ₹172 as profit. If he sells Y at a single discount of 88%, then what is the profit percentage on Y?

A. 22.5%



B. 21%

C. 21.5%

D. 22%

Q11 Mathematics

A sum of money amounts to ₹52,020 in 6 months at the rate of 8% per annum when the interest is compounded quarterly. Find the sum.

A. ₹51,000

B. ₹48,000

C. ₹49,000

D. ₹50,000

**Q12 Mathematics**

Which of the following numbers is not divisible by both 94 and 68?

A. 9588

B. 6392

C. 3196

D. 7990

**Q13 Mathematics**

The mean of a data is 41 and its median is 98. The mode (using empirical relation) of the data is:

A. 128

B. 212



C. 209

D. 240

Q14 Mathematics

The difference between the ages of Anuja and Mahima is 42 years. Five years ago from now, the sum of their ages was 98 years. If Anuja is older than Mahima, find Mahima's present age (in years).

A. 27

B. 28

C. 33



D. 29

Q15 Mathematics

A person gave 40% of his income to his wife to look after household expenditure. He gave 20% of the remaining amount to each of his two sons and one daughter. One - third of the amount now left was spent on miscellaneous items and the remaining amount ₹14,400 was deposited in the bank. Find his income.

A. ₹1,00,000

B. ₹96,000

C. ₹1,10,000

D. ₹90,000

**Q16 Mathematics**

In a test, B got 50 marks while A got 80 marks out of 110 maximum marks. What percentage of A's marks were B's marks?

A. 62.5%



B. 110%

C. 72.73%

D. 160%

Q17 Mathematics

Which of the following numbers is divisible by 11?

A. 513589

B. 502589

C. 512579

D. 502579



Q18 Mathematics

Karan and Arjun start a business. Karan invests ₹15,000 more than Arjun. Karan invests for 3 months, and Arjun invests for 4 months. At the end of the business, the total profit is ₹6,060, and Karan's share is ₹2,020 more than Arjun's share. Find the capital contributed by Karan.

A. ₹23,885

B. ₹24,087

C. ₹24,000



D. ₹24,093

Q19 Mathematics

Three inlet pipes A, B, and C can fill a tank in 8 hours, 12 hours, and 24 hours, respectively. First, pipe A is opened alone for 1 hour. Then pipe B is opened, and both A and B run together for the next 2 hours. After that, pipe C is also opened, and all three pipes run together until the tank is full. How much total time, from the start, will it take to fill the tank?

A. 4 hour 20 minutes

B. 4 hour 40 minutes

C. 4 hour 30 minutes

D. 4 hour 50 minutes

**Q20 Mathematics**

If the length of the side of an equilateral triangle is 8 cm, find its area. (Use $\sqrt{3} = 1.732$).

A. 28.612 sq.cm.

B. 24.812 sq.cm.

C. 26.812 sq.cm.

D. 27.712 sq.cm.

**Q21 Mathematics**

The sum of the length, breadth and height of a cuboid is p cm and its diagonal is q cm. Find its total surface area (in cm^2).

A. $(p - q)^2$

B. $p^2 + q^2$

C. $\frac{p^2 - q^2}{2}$

D. $p^2 - q^2$

**Q22 Mathematics**

If $a = 0.1125$, then find the value of $100[\sqrt{1 + 2(3a) + 9a^2} - 4a]$.

A. 85.57

B. 87.57

C. 87.75

D. 88.75



Q23 Mathematics

Simplify: $\left(\frac{15}{24} \div \frac{15}{2}\right) \div \left(\frac{1}{8} \times \frac{16}{3} + \frac{1}{8}\right) + \frac{2}{11} \div \frac{19}{23}$ of $\frac{23}{11}$

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

B. $-\frac{4}{24}$

C. $-\frac{5}{23}$ 

D. $\frac{4}{19}$

Q24 Mathematics

If $\frac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta} = 11$, then the value of $\frac{25 \tan^2\theta - 3}{36 \cot^2\theta + 2} - 1$ is: $\frac{2}{9} \frac{7}{9} \frac{7}{9}$

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

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

C. 1

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

Q25 Mathematics

The curved surface area of a right circular cylinder is 1056 cm^2 and its height is 16 cm. Find the total surface area of the cylinder.

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

A. 1749 cm^2 

B. 1479 cm^2

C. 1974 cm^2

D. 1794 cm^2



Mathematics

25 Questions • Answer Key

Q1 Mathematics

A tap fills a tank in 11 hours. Another tap empties the full tank in 22 hours. How long (in hours) will it take to fill the tank completely, if the tank is empty and both the taps are open together?

A. 24

B. 22



C. 23

D. 25

Q2 Mathematics

What is the amount on ₹20,000 for six months at 12% annual interest, compounded quarterly?

A. ₹21335

B. ₹21218



C. ₹21823

D. ₹21934

Q3 Mathematics

A quantity is first decreased by 12% and then again decreased by 8%. What is the overall percentage decrease?

A. 20.96%

B. 19.04%



C. 18.96%

D. 21.04%

Q4 Mathematics

A man sells two articles for ₹42000 each. He gets a profit of 45% on one article and loses 45% on the other article. What is his overall profit or loss (to the nearest integer) in this transaction?

A. ₹21329 loss



B. ₹21429 profit

C. ₹21329 profit

D. ₹21429 loss

Q5 Mathematics

A traveller moves from City A to City B at 48 km/h and returns at 60 km/h. If the total time taken for the whole journey is 9 hours, find the distance between A and B.

A. 270 km

B. 250 km

C. 240 km



D. 260 km

Q6 Mathematics

If 15 notebooks cost ₹240, then how many notebooks can be bought with ₹992?

A. 62



B. 64

C. 60

D. 66

Q7 Mathematics

In a college, class A has 25 students and class B has 30 students. If the number of students in class A increases by 20% in the first year and by 10% in the second year, and the number of students in class B increases by a total of 20% in two years, what is the overall percentage increase in the total number of students in the college over the two years? (Give your answer rounded off to 2 decimal places.)

A. 25.45%



B. 25.85%

C. 20.45%

D. 20.85%

Q8 Mathematics

What sum of money (in ₹) will yield ₹720 as simple interest in 3 years at 6% per annum?

A. 4400

B. 4200

C. 4000



D. 3500



Q9 Mathematics

The value of $27^3 - 22^3$ is:

- A. 8923
- B. 9035
- C. 8888
- D. 8823

**Q10 Mathematics**

Which number, when added to each of the numbers 2, 3, 11 and 13, will make the resulting numbers in proportion?

- A. 5
- B. 6
- C. 4
- D. 7

**Q11 Mathematics**

The mean of a data is 20 and its median is 30. The mode (using empirical relation) of the data is:

- A. 110
- B. 131
- C. 44
- D. 50

**Q12 Mathematics**

A dealer buys two articles X and Y for ₹700 each. He marks each of them at the same price. He sells X by giving two successive discounts of 60% and 20% and still earns ₹630 as profit. If he sells Y at a single discount of 76%, then what is the profit percentage on Y?

- A. 42%
- B. 41.5%
- C. 41%
- D. 42.5%

**Q13 Mathematics**

Pipe A can fill a tank in 12 hours, pipe B in 15 hours, and an outlet C can empty it in 20 hours. A and B are opened together for 5 hours, and then C is also opened. Find the total time to fill the tank.

- A. 6.5 hours
- B. 6 hours
- C. 7.5 hours
- D. 5.5 hours

**Q14 Mathematics**

If the cost of 8 pens is ₹136, then find the cost of 12 such pens.

- A. ₹206
- B. ₹202
- C. ₹204
- D. ₹208

**Q15 Mathematics**

The difference between the present ages of Ayushi and Nidhi is 26 years. Five years ago from now, the sum of their ages was 30 years. If Ayushi is older than Nidhi, find Nidhi's present age (in years).

- A. 7
- B. 12
- C. 10
- D. 6

**Q16 Mathematics**

What is the mode of the following data?

47, 43, 50, 46, 46, 40, 54, 54, 40, 54, 42, 48, 44, 55, 52, 45, 41, 41

- A. 41
- B. 46
- C. 54
- D. 40

**Q17 Mathematics**

The difference between the present ages of Juhi and Surbhi is 24 years. Five years ago from now, the sum of their ages was 66 years. If Juhi is older than Surbhi, find Surbhi's present age (in years).

- A. 26
- B. 33
- C. 20
- D. 18

**Q18 Mathematics**

If an exterior angle of a regular polygon is 40° , then find the number of diagonals of the polygon.

- A. 27
- B. 40
- C. 35
- D. 45



Q19 Mathematics

Aarju starts a business with ₹55,000 and after 3 months, Bimla joins Aarju as her partner. After a year, the profit is divided in the ratio 8 : 9. What is Bimla's contribution in the capital?

A. ₹84,240

B. ₹82,355

C. ₹82,500 

D. ₹84,080

Q20 Mathematics

If $x = 5 + 2\sqrt{6}$, then find the value of $\frac{x-1}{\sqrt{x}}$.

A. $\sqrt{3} + \sqrt{2}$ B. $\sqrt{2}$ C. $2\sqrt{2}$ D. $3\sqrt{2}$ **Q21 Mathematics**

Simplify:

$$\left(\frac{5}{6} + \frac{1}{3}\right) \div \left(\frac{2}{5} + 0.3\right) \times 0.5 + \frac{1}{2} - \frac{1}{6}$$

A. $\frac{1}{6}$ B. $\frac{7}{6}$ C. $\frac{3}{6}$ D. $\frac{5}{6}$ **Q22 Mathematics**

The simplified value of $\sqrt{225} + \sqrt{0.04} - \sqrt{4.84}$ is

A. 4.03

B. 13 

C. 3.82

D. 13.53



Q23 Mathematics

A hollow cylindrical pipe has an external radius of 7 cm, internal radius of 6 cm, and height of 20 cm. Find the total surface area of the pipe (both ends included).

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

A. 1600 cm²

B. 1716 cm² ✓

C. 1670 cm²

D. 1485 cm²

Q24 Mathematics

Find the perimeter of the semi-circle of radius 21 cm

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

A. 87 cm

B. 174 cm

C. 108 cm ✓

D. 66 cm

Q25 Mathematics

$$\frac{19}{3} \frac{29}{3} \frac{11}{3} \frac{17}{3}$$

A. $\frac{19}{3}$ ✓

B. $\frac{17}{3}$

C. $\frac{29}{3}$

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



Mathematics

25 Questions • Answer Key

Q1 Mathematics

If the product of two numbers is 98,304 and their HCF is 128, then find the LCM of the numbers.

A. 768



B. 789

C. 786

D. 766

Q2 Mathematics

The length of a diagonal of a rectangular park is 25 meters, and that of one of its sides is 15 meters. Find the perimeter of the park.

A. 40 meters

B. 70 meters



C. 50 meters

D. 60 meters

Q3 Mathematics

A trader claims to sell spice at a profit of 15% but also dishonestly uses a weight which is 14% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round the answer to the nearest whole number)

A. 31%

B. 36%

C. 34%



D. 39%

Q4 Mathematics

What is the mode of the following data?

43, 44, 43, 53, 42, 44, 46, 47, 55, 50, 52, 55, 40, 45, 44, 53, 48, 48

A. 43

B. 55

C. 53

D. 44



Q5 Mathematics

Which of the following numbers is NOT divisible by both 6 and 9?

A. 45



B. 90

C. 54

D. 72

Q6 Mathematics

Mr. John spent 20% of his monthly income on food and 20% on children's education. 40% of the remaining income, he spent on shopping and transport together and 20% of the rest was spent on medical expenses. If he is left with ₹23,040, after all these expenditures, what is his monthly income?

A. ₹86,000

B. ₹96,000

C. ₹92,000

D. ₹80,000



Q7 Mathematics

If $a + b + c = 13$ and $ab + bc + ca = 4$, then what is the value of $ab(a + b) + bc(b + c) + ca(c + a) + 3abc$?

A. 17

B. 38

C. 9

D. 52



Q8 Mathematics

If the fourth proportional to $2x$, $3x$, and 12 is y , find y .

A. 16

B. 20

C. 18



D. 24



Q9 Mathematics

The mean of a data is 47 and its median is 61. The mode (using empirical relation) of the data is:

- A. 148
- B. 111
- C. 23
- D. 89

**Q10 Mathematics**

The difference between two parallel sides of a trapezium is 9 cm. The perpendicular distance between them is 52 cm. If the area of the trapezium is 988 cm^2 , find the lengths of the parallel sides (in cm).

- A. 29.5, 20.5
- B. 35.5, 20.5
- C. 18.5, 12.5
- D. 23.5, 14.5

**Q11 Mathematics**

When one-third of a number is increased by 25, the result is 100. Find the sum of the digits of the original number.

- A. 10
- B. 9
- C. 7
- D. 12

**Q12 Mathematics**

What sum of money (in ₹) will yield ₹720 as simple interest in 3 years at 8% per annum?

- A. 2500
- B. 3200
- C. 3000
- D. 3400

**Q13 Mathematics**

If $9A7B$ is divisible by 55, find $A + B$.

- A. 5
- B. 7
- C. 11
- D. 16

**Q14 Mathematics**

Lalit deposits ₹42,000 in his account that pays an annual interest rate of 20% compounded half yearly. Calculate the total amount in his account after one year.

- A. ₹50,650
- B. ₹50,820
- C. ₹50,680
- D. ₹50,880

**Q15 Mathematics**

The difference between the present ages of Ayushi and Nidhi is 21 years. Five years ago from now, the sum of their ages was 83 years. If Ayushi is older than Nidhi, find Nidhi's present age (in years).

- A. 36
- B. 38
- C. 33
- D. 31

**Q16 Mathematics**

A 180-meter-long train passes a pole in 12 seconds. A second 120-meter-long train is moving in the same direction as of the first train and crosses the first train in 15 seconds. What is the speed of the second train?

- A. 115 km/h
- B. 120 km/h
- C. 110 km/h
- D. 126 km/h

**Q17 Mathematics**

Three pipes X, Y, and Z can fill a tank in 12, 15, and 20 hours, respectively. All three pipes are opened together but pipe Z is closed 3 hours before the tank is completely filled. In how many hours will the tank be filled?

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



Q18 Mathematics

A dealer buys two articles X and Y for ₹800 each. He marks each of them at the same price. He sells X by giving two successive discounts of 73% and 37% and still earns ₹901 as profit. If he sells Y at a single discount of 89%, then what is the profit percentage on Y?

A. 36.5%

B. 37%

C. 37.5% 

D. 36%

Q19 Mathematics

The sum of the present ages of a father and his son is 60 years. Five years ago from now, the product of numerical values of their ages was 525. Find the present age (in years) of the father.

A. 50

B. 45

C. 55

D. 40 **Q22 Mathematics**

$$\frac{5}{3} - \frac{2}{3} - \frac{2}{3} - \frac{5}{3}$$

A. $\frac{5}{3}$ B. $\frac{2}{3}$ C. $-\frac{2}{3}$ D. $-\frac{5}{3}$ **Q23 Mathematics**

If the area of an equilateral triangle is given as 900 m^2 , then what is its perimeter?

A. $60\sqrt[3]{27} \text{ m}$ B. $60\sqrt[4]{27} \text{ m}$ C. $60\sqrt[4]{21} \text{ m}$ D. $60\sqrt[4]{81} \text{ m}$ **Q20 Mathematics**

One pipe can fill the tank in 14 min, while another pipe can empty the completely filled tank in 63 min. If both the pipes are operated together on empty tank, how long (in min) will it take to fill one-third of the tank?

A. 6 

B. 12

C. 18

D. 24

Q21 Mathematics

A number when increased by 110%, gives 3570. The number is:

A. 5100

B. 3400

C. 1700 

D. 850



Q24 Mathematics

Simplify: $[\{76 \times (24 \div 3) + 2 \times 18\} \div 644] \times \frac{20}{2}$

A. 4

B. 10



C. 20

D. 16

Q25 Mathematics

Simplify: $\frac{(120 - 12) \div (24 \div 2) - 12 + 7}{5 \times 12 \div 10 - (6 \times 4) \div 12}$

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

B. 1

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



D. - 1



Mathematics

25 Questions • Answer Key

Q1 Mathematics

Find the third proportional to $a^3 - b^3$ and $a^2 + b^2 + ab$, when $a = 16$ and $b = 12$.

- A. 160
B. 158
C. 150
D. 148



Q2 Mathematics

Which of the following numbers is divisible by both 17 and 13?

- A. 22372
B. 21658
C. 21401
D. 20049



Q3 Mathematics

What is the mode of the following data?
50, 43, 40, 51, 44, 46, 40, 43, 41, 45, 46, 40, 45, 47, 45, 49, 47, 40

- A. 40
B. 45
C. 46
D. 43



Q4 Mathematics

Simplify: $(3.6 \times 2.5) - (4.8 \div 1.6) + (3.2 \times 0.5)$

- A. 7.4
B. 7.6
C. 7.2
D. 7.8



Q5 Mathematics

A dealer buys two articles X and Y for ₹3,400 each. He marks each of them at the same price. He sells X by giving two successive discounts of 10% and 50% and still earns ₹323 as profit. If he sells Y at a single discount of 28%, then what is the profit percentage on Y?

- A. 74%
B. 75%
C. 74.2%
D. 75.2%



Q6 Mathematics

A, B, and C invested money in the ratio of 2 : 3 : 4 for periods in the ratio of 6 : 4 : 3, respectively. If the total profit is ₹1,32,000, what is the share of C?

- A. ₹44,000
B. ₹45,000
C. ₹42,000
D. ₹43,000



Q7 Mathematics

Given that $74^{0.45} = x$, $74^{0.12} = y$ and $x^z = y^2$, then the value of z is close to:

- A. 2.52
B. 3.99
C. 1.45
D. 0.53



Q8 Mathematics

The price of a laptop increased by 20% in the first month, then decreased by 10% in the second month, and increased again by 15% in the third month. If the original price of the laptop was ₹1,20,000, what is the final price after these three changes?

- A. ₹1,42,800
B. ₹1,38,000
C. ₹1,49,040
D. ₹1,41,000



Q9 Mathematics

Two persons A and B start from the same point. A walks at 5 km/h. After 't' hours B starts and catches A after 2 hours of his own walking. If B's speed is 8 km/h, what is the value of 't'?

A. 1.4

B. 1.5

C. 1.3

D. 1.2

**Q10 Mathematics**

In a class, there are 36 boys and 24 girls. By what percentage should the number of girls be increased so that it becomes equal to the number of boys?

A. 50%



B. 40%

C. 30%

D. 60%

Q11 Mathematics

In a family, the sum of the ages of a father and son is 50 years. 10 years from now, the difference in their ages will be 20 years. Find the ratio of the son's age to the father's age.

A. 3:7



B. 2:7

C. 4:7

D. 5:8

Q12 Mathematics

What sum of money (in ₹) will yield ₹700 as simple interest in 2 years at 8% per annum?

A. 4575

B. 3875

C. 4775

D. 4375

**Q13 Mathematics**

When one-third of a number is increased by 10, the result is 65. Find the sum of the digits of the original number.

A. 14

B. 9

C. 12



D. 11

Q14 Mathematics

If 40 pages are printed in 5 minutes by a printer, how many pages will be printed in 3 hours?

A. 1810

B. 1560

C. 1620

D. 1440

**Q15 Mathematics**

A can do a piece of work in 63 hours; B and C together can do it in 48 hours, while A and C together can do it in 36 hours. How long (in hours) will B alone take to do it?

A. 112



B. 113

C. 114

D. 111

Q16 Mathematics

The average age of six girls increases by four months, if a 12 - year old girl is replaced by a new girl. The age of the new girl is:

A. 14 years



B. 13 years

C. 15 years

D. 16 years

Q17 Mathematics

During a sale, 44% of the goods are sold at a profit of 47%. Of the remaining goods, 25% are sold at a profit of 22%, and the rest are sold at a loss of 38%. If the overall profit is x%, what is the value of x?

A. 18.5

B. 18

C. 7.8



D. 12.4



Q18 Mathematics

A can complete a piece of work in 10 days and B can complete the same work in 15 days, when each works individually. Both A and B work together for 3 days. After that, B leaves the work, and A alone completes the remaining work. How many days will A take to finish the remaining work alone?

A. 10 days

B. 5 days



C. 6 days

D. 8 days

Q19 Mathematics

A trapezium has parallel sides of lengths 17 cm and 29 cm, and the distance between them is 15 cm. What is the area of the trapezium?

A. 325 cm²

B. 315 cm²

C. 335 cm²

D. 345 cm²

**Q20 Mathematics**

If $a + b = 12$ and $ab = 8$ then the numerical value of $\left(\frac{a}{b} + \frac{b}{a}\right)$ will be:

A. 16



B. 20

C. 14

D. 12

Q21 Mathematics

$$2\frac{2}{3} \div \frac{1}{3} \times 3$$

A. 2

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

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

D. 3

**Q22 Mathematics**

The salary of Mina is ₹80,000. Out of which she deposits x% amount at 15% simple interest. If the accumulated amount for the money deposited after 3 years is ₹17,400, then find the value of x.

A. 25

B. 15



C. 12

D. 20



Q23 Mathematics

A cylindrical rod has an outer curved surface area of 7900 cm^2 . If the length of the rod is 3 cm, then the outer radius (in cm) of the rod, correct to two places of decimal, is:

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

A. 418.94



B. 417.52

C. 420.85

D. 419.12

Q24 Mathematics

G is the centroid of the equilateral triangle ABC. If $AB = 36 \text{ cm}$, then length (in cm) of AG is:

A. $10\sqrt{3}$

B. $8\sqrt{6}$

C. $12\sqrt{3}$



D. $6\sqrt{6}$

Q25 Mathematics

Find the value of $38 - [27 - (90 \div 5 - (12 - 18 \div 6) \div 3)]$.

A. 24

B. 25

C. 22

D. 26

