

Sample Question Archives - CAT, XAT, TANCET, PGSEM Test

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1. **Question 1:** If one of the roots of the quadratic equation $x^2 + mx + 24 = 0$ is 1.5, then what is the value of m ?
2. **Question 2:** Find the remainder when the polynomial $x^4 - 3x^2 + 7x - 10$ is divided by $x - 2$.
3. **Question 3:** If one of the roots of the quadratic equation $2x^2 - 7x + q = 0$ is 3, then find the other root.
4. **Question 4:** A railway half ticket costs half the full fare and the reservation charge is the same on half ticket as on full ticket. One reserved first class ticket from Chennai to Trivandrum costs Rs. 216 and one full and one half reserved first class tickets cost Rs. 327. What is the basic first class full fare and what is the reservation charge?
5. **Question 5:** If p and q are the roots of the equation $x^2 - bx + c = 0$, then what is the equation if the roots are $(pq + p + q)$ and $(pq - p - q)$?
6. **Question 6:** If $(x + 2)^2 = 9$ and $(y + 3)^2 = 25$, then the maximum value of x / y is.
7. **Question 7:** For what values of ' m ' is $y = 0$, if $y = x^2 + (2m + 1)x + m^2 - 1$? X is a real number.

The following questions are from the topic averages, simple averages and weighted averages that typically appear in the entrance tests of top Indian business schools.

1. **Question »** The average monthly salary of 12 workers and 3 managers in a factory was Rs. 600. When one of the manager whose salary was Rs. 720, was replaced with a new manager, then the average salary of the team went down to 580. What is the salary of the new manager?

2. **Question** » The average wages of a worker during a fortnight comprising 15 consecutive working days was Rs.90 per day. During the first 7 days, his average wages was Rs.87/day and the average wages during the last 7 days was Rs.92 /day. What was his wage on the 8th day?
3. **Question** » The average of 5 quantities is 6. The average of 3 of them is 8. What is the average of the remaining two numbers?
4. **Question** » The average temperature on Wednesday, Thursday and Friday was 250. The average temperature on Thursday, Friday and Saturday was 240. If the temperature on Saturday was 270, what was the temperature on Wednesday?
5. **Question** » The average age of a group of 12 students is 20years. If 4 more students join the group, the average age increases by 1 year. The average age of the new students is
6. **Question** » When a student weighing 45 kgs left a class, the average weight of the remaining 59 students increased by 200g. What is the average weight of the remaining 59 students?
7. **Question** » Three math classes: X, Y, and Z, take an algebra test.
The average score in class X is 83.
The average score in class Y is 76.
The average score in class Z is 85.
The average score of all students in classes X and Y together is 79.
The average score of all students in classes Y and Z together is 81.

What is the average for all the three classes?
8. **Question** » The average weight of a class of 24 students is 36 years. When the weight of the teacher is also included, the average weight increases by 1kg. What is the weight of the teacher?
9. **Question** » The average of 5 quantities is 10 and the average of 3 of them is 9. What is the average of the remaining 2?
10. **Question** » The average age of a family of 5 members is 20 years. If the age of the youngest member be 10 years then what was the average age of the family at the time of the birth of the youngest member?
11. **Question** » A student finds the average of 10 positive integers. Each integer contains two digits. By mistake, the boy interchanges the digits of one number say ba for ab. Due to this, the average becomes 1.8 less than the previous one. What was the difference of the two digits a and b?
12. **Question** » Average cost of 5 apples and 4 mangoes is Rs. 36. The average cost of 7 apples and 8 mangoes is Rs. 48. Find the total cost of 24 apples and 24 mangoes.

The following questions are from the topic averages, simple averages and weighted averages that typically appear in the entrance tests of top Indian business schools.

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A collection of questions that typically appear from the topics of clocks and calendars.

Question 1 » The time in a clock is 20 minute past 2. Find the angle between the hands of the clock.

Question 2 » Given that on 27th February 2003 is Thursday. What was the day on 27th February 1603?

Question 3 » How often between 11 O'clock and 12 O'clock are the hands of the clock together at an integral number value?

Question 4 » A clock loses 1% time during the first week and then gains 2% time during the next one week. If the clock was set right at 12 noon on a Sunday, what will be the time that the clock will show exactly 14 days from the time it was set right?

Question 5 » At how many points between 10 O'clock and 11 O'clock are the minute hand and hour hand of a clock at an angle of 30 degrees to each other?

Question 6 » What is the angle between the minute hand and the hour hand when the time is 1540 hours?

Question 1 > A and B are two points with the co-ordinates $(-2, 0)$ and $(0, 5)$. What is the length of the diagonal AC if AB form one of the sides of the square ABCD?

Question 2 > Which of the following is incorrect?

Question 3 > A circle of maximum possible size is cut from a square sheet of board. Subsequently, a square of maximum possible size is cut from the resultant circle. What will be area of the final square?

Question 4 > What is the area of the largest triangle that can be fitted into a rectangle of length 'l' units and width 'w' units?

Question 5 › Each interior angle of a regular polygon is 120 degrees greater than each exterior angle. How many sides are there in the polygon?

Question 6 › A stairway 10ft high is such that each step accounts for half a foot upward and one-foot forward. What distance will an ant travel if it starts from ground level to reach the top of the stairway?

Question 7 › Find the area of the triangle whose vertices are (-6, -2), (-4, -6), (-2, 5).

Question 8 › Find the area of the sector covered by the hour hand after it has moved through 3 hours and the length of the hour hand is 7cm.

Question 9 › Find the equation of a line whose intercepts are twice of the line $3x - 2y - 12 = 0$

Question 10 › Find the number of triangles in an octagon.

Question 11 › Find the coordinates of the point which divides the line joining (5, -2) and (9, 6) internally in the ratio 1 : 3.

Question 12 › What is the circum radius of a triangle whose sides are 7, 24 and 25 respectively?

Question 13 › What is the measure of in radius of the triangle whose sides are 24, 7 and 25?

Question 14 › If ABC is a right angle triangle with angle A = 90 and $2s = a + b + c$, where $a > b > c$ where notations have their usual meanings, then which one of the following is correct?

Question 15 › If the sum of the interior angles of a regular polygon measures up to 1440 degrees, how many sides does the polygon have?

Question 16 What is the measure of the circum radius of a triangle whose sides are 9, 40 and 41?

A collection of questions that typically appear from the topic Inequalities. These are interesting questions and can be solved within 2 minutes in most cases, if one knows the basics of inequalities.

Question 1 › Which of the following inequalities have a finite range of values of "x" satisfying them?

Question 2 › For what range of values of 'x' will the inequality

$$15x - \frac{2}{x} > 1?$$

Question 3 » Find the range of real values of x satisfying the inequalities $3x - 2 > 7$ and $4x - 13 > 15$.

Question 4 » Solve the inequality $3^{3x-2} > 1$

Question 6 » Solve for real ' x ' if $\sqrt{9x-x^2} > 0$

Following is a set of typically tested questions in CAT and other B School entrance tests on the topic Mensuration.

1. **Question** » A 5 cubic centimeter cube is painted on all its side. If it is sliced into 1 cubic centimeter cubes, how many 1 cubic centimeter cubes will have exactly one of their sides painted?
2. **Question** » The area of a square field is 24200 sq m. How long will a lady take to cross the field diagonally at the rate of 6.6 km/hr?
3. **Question** » The circumference of the front wheel of a cart is 30 ft long and that of the back wheel is 36 ft long. What is the distance travelled by the cart, when the front wheel has done five more revolutions than the rear wheel?
4. **Question** » If the sides of a triangle measure 72, 75 and 21, what is the measure of its in radius?

5. **Question** > A 5 cm cube is cut into as many 1 cm cubes as possible. What is the ratio of the surface area of the larger cube to that of the sum of the surface areas of the smaller cubes?

6. **Question** > If each interior angle of a regular polygon is 150 degrees, then it is

7. **Question** > Four horses are tethered at 4 corners of a square field of side 70 metres so that they just cannot reach one another. The area left ungrazed by the horses is:

8. **Question** > A square sheet of paper is converted into a cylinder by rolling it along its length. What is the ratio of the base radius to the side of the square?

9. **Question** > The surface area of the three coterminous faces of a cuboid are 6, 15, 10 sq.cm respectively. Find the volume of the cuboid.

10. **Question** > If the diagonal and the area of a rectangle are 25 m and 168 m², what is the length of the rectangle?

11. **Question** > A 4 cm cube is cut into 1 cm cubes. What is the percentage increase in the surface area after such cutting?

12. **Question** > A regular hexagon is inscribed in a circle of radius r cms. What is the perimeter of the regular hexagon?

Question 1 > A 20 litre mixture of milk and water contains milk and water in the ratio 3 : 2. 10 litres of the mixture is removed and replaced with pure milk and the operation is repeated once more. At the end of the two removal and replacement, what is the ratio of milk and water in the resultant mixture?

Question 2 > In what ratio must a person mix three kinds of tea costing Rs.60/kg, Rs.75/kg and Rs.100 /kg so that the resultant mixture when sold at Rs.96/kg yields

a profit of 20%?

Question 3 > A merchant mixes three varieties of rice costing Rs.20/kg, Rs.24/kg and Rs.30/kg and sells the mixture at a profit of 20% at Rs.30 / kg. How many kgs of the second variety will be in the mixture if 2 kgs of the third variety is there in the mixture?

Question 4 > How many litres of water should be added to a 30 litre mixture of milk and water containing milk and water in the ratio of 7 : 3 such that the resultant mixture has 40% water in it?

Question 5 > How many kgs of Basmati rice costing Rs.42/kg should a shopkeeper mix with 25 kgs of ordinary rice costing Rs.24 per kg so that he makes a profit of 25% on selling the mixture at Rs.40/kg?

Question 6 > How many litres of a 12 litre mixture containing milk and water in the ratio of 2 : 3 be replaced with pure milk so that the resultant mixture contains milk and water in equal proportion?

Question 7 > A sample of x litres from a container having a 60 litre mixture of milk and water containing milk and water in the ratio of 2 : 3 is replaced with pure milk so that the container will have milk and water in equal proportions. What is the value of x?

Question 8 > A zookeeper counted the heads of the animals in a zoo and found it to be 80. When he counted the legs of the animals he found it to be 260. If the zoo had either pigeons or horses, how many horses were there in the zoo?

Question 9 > From a cask of milk containing 30 litres, 6 litres are drawn out and the cask is filled up with water. If the same process is repeated a second, then a third time, what will be the number of litres of milk left in the cask?

A collection of questions that typically appear in the Common Admission Test (CAT) from the topic Number Theory. These questions will guide you through your CAT and other MBA entrance exam preparation.

Question 1 > If both 11^2 and 3^3 are factors of the number $a * 4^3 * 6^2 * 13^{11}$, then what is the smallest possible value of 'a'?

1. 121
2. 3267
3. 363
4. 33

Correct choice (3). Correct Answer - (363)

112 is a factor of the given number. The number does not have a power or multiple

of 11 as its factor. Hence, "a" should include 112

33 is a factor of the given number. 62 is a part of the number. 62 has 32 in it. Therefore, if 33 has to be a factor of the given number $a * 43 * 62 * 1311$, then we will need at least another 3.

Therefore, if "a" should be at least $112 * 3 = 336$ if the given number has to have 112 and 33 as its factors.

Question 2 » Find the greatest number of five digits, which is exactly divisible by 7, 10, 15, 21 and 28.

- (1) 99840
- (2) 99900
- (3) 99960
- (4) 99990

Correct Choice is (3) and the correct answer is 99960

The number should be exactly divisible by 15 (3, 5), 21 (3, 7), 28 (4, 7). Hence, it is enough to check the divisibility for 3, 4, 5 and 7.

99960 is the only number which satisfies the given condition.

Question 3 » Anita had to do a multiplication. Instead of taking 35 as one of the multipliers, she took 53. As a result, the product went up by 540. What is the new product?

- (1) 1050
- (2) 540
- (3) 1440
- (4) 1590

Correct choice is (4) and Correct Answer is 1590

Let the number that Anita wanted to multiply be 'X'. She was expected to find the value of 35X. Instead, she found the value of 53X.

The difference between the value that she got (53X) and what she was expected to get (35X), according to the question, is 540.

$$\begin{aligned} \text{i.e., } 53X - 35X &= 540 \\ \text{or } (53 - 35) * X &= 540 \\ X &= 30 \end{aligned}$$

Therefore, new product = $53 * 30 = 1590$

Question 4 » Let x , y and z be distinct integers. x and y are odd and positive, and z is even and positive. Which one of the following statements cannot be true?

- (1) $(x-z)^2 y$ is even
- (2) $(x-z)y^2$ is odd
- (3) $(x-z)y$ is odd
- (4) $(x-y)^2 z$ is even

Correct Choice is **(1)** and Correct Answer is **$(x-z)^2 y$ is even**

x and y are odd and positive and z is even and positive

$(x - z)^2 y$ is even cannot true

$x - z$ is odd and y is odd

Therefore, $(x - z)^2$ will be odd and $(x - z)^2 y$ will be odd

Question 5 » When a number is divided by 36, it leaves a remainder of 19. What will be the remainder when the number is divided by 12?

- (1) 10
- (2) 7
- (3) 192
- (4) None of these

Correct Choice is **(2)** and Correct Answer is **7**

Let the number be 'a'.

When 'a' is divided by 36, let the quotient be 'q' and we know the remainder is 19

i.e., $\frac{a}{36} = q$ and remainder is 19

or $a = 36q + 19$

when a is divided by 12, we get

$$\frac{36q+19}{12} \text{ or } \frac{36q}{12} + \frac{19}{12}$$

$36q$ is perfectly divided by 12

Therefore, remainder = 7

- Question 6** » The sum of the first 100 numbers, 1 to 100 is divisible by
- (1) 2, 4 and 8
 - (2) 2 and 4
 - (3) 2 only
 - (4) None of these

Correct Choice is (3) and Correct Answer is 2 only

The sum of the first 100 natural numbers is given by $(n(n + 1))/2 = (100(101))/2 = 50(101)$.

101 is an odd number and 50 is divisible by 2. Hence, 50×101 will be divisible by 2.

- Question 7** » How many different factors are there for the number 48, excluding 1 and 48?
- (1) 12
 - (2) 4
 - (3) 8
 - (4) None of these

Correct Choice is (3) and the correct answer is 8

To find the number of factors of a given number, express the number as a product of powers of prime numbers.

In this case, 48 can be written as $16 * 3 = (2^4 * 3)$

Now, increment the power of each of the prime numbers by 1 and multiply the result.

In this case it will be $(4 + 1) * (1 + 1) = 5 * 2 = 10$ (the power of 2 is 4 and the power of 3 is 1)

Therefore, there will 10 factors including 1 and 48. Excluding, these two numbers, you will have $10 - 2 = 8$ factors.

Question 8 » $10^{25} - 7$ is divisible by

1. 2
2. 3
3. 9
4. Both (2) and (3)

Correct Answer - 3. Correct choice is (2)

$$10^{25} - 7 = (10^{25} - 1) - 6$$

The number $10^{25} - 1 = 99\dots9$ (25 digits) is divisible by 3 and 4.

Therefore, $(10^{25} - 1) - 6 = (24 \text{ nines and unit digit is } 3) 99\dots93$.

This number is only divisible by 3 (from the given choices).

Question 9 » Find the G.C.D of $12x^2y^3z^2$, $18x^3y^2z^4$, and $24xy^4z^3$

- (1) $6xy^2z^2$
- (2) $6x^3y^4z^3$
- (3) $24xy^2z^2$
- (4) $18x^2y^2z^3$

Correct Choice is (1) and Correct Answer is $6xy^2z^2$

G.C.D of 12, 18 and 24 is 6.

The common factors are x, y, z and their highest powers common to all are 1, 2 and 2 respectively.

Therefore, G.C.D = $6xy^2z^2$

Question 10 » What is the value of M and N respectively? If M39048458N is divisible by 8 & 11; Where M & N are single digit integers?

- (1) 7, 8
- (2) 8, 6
- (3) 6, 4
- (4) 5, 4

Correct Choice is (3) and correct answer is 6, 4

If the last three digits of a number is divisible by 8, then the number is divisible by 8 (test of divisibility by 8).

Here, last three digits 58N is divisible by 8 if $N = 4$. (Since 584 is divisible by 8.)

For divisibility by 11. If the digits at odd and even places of a given number are equal or differ by a number divisible by 11, then the given number is divisible by 11.

Therefore, $(M+9+4+4+8)-(3+0+8+5+N)=(M+5)$ should be divisible by 11 \Rightarrow when $M = 6$.

Percentages, Fractions questions that appear in PGSEM, XAT, CAT, TANCET

A collection of questions that typically appear in the Common Admission Test (CAT) from the topic Number Theory. These questions will guide you through your CAT and other MBA entrance exam preparation.

Question 1 »

If the price of petrol increases by 25% and Raj intends to spend only an additional 15% on petrol, by how much % will he reduce the quantity of petrol purchased?

1. 10%
2. 12%
3. 8%
4. 6.67%

Correct Answer - **8%**. Choice (3)

Let the price of 1 litre of petrol be Rs. x and let Raj initially buy ' y ' litres of petrol. Therefore, he would have spent Rs. xy on petrol.

When the price of petrol increases by 25%, the new price per litre of petrol is $1.25x$.

Raj intends to increase the amount he spends on petrol by 15%.

i.e., he is willing to spend $xy + 15\%$ of $xy = 1.15xy$

Let the new quantity of petrol that he can get be ' q '.

Then, $1.25x * q = 1.15xy$

$$\text{Or } q = \frac{1.15xy}{1.25x} = \frac{1.15}{1.25}y = 0.92y.$$

As the new quantity that he can buy is $0.92y$, he gets $0.08y$ lesser than what he used to get earlier.
Or a reduction of 8%.

Question 2 »

A shepherd has 1 million sheeps at the beginning of Year 2000. The numbers grow by $x\%$ ($x > 0$) during the year. A famine hits his village in the next year and many of his sheeps die. The sheep population decreases by $y\%$ during 2001 and at the beginning of 2002 the shepherd finds that he is left with 1 million sheeps. Which of the following is correct?

1. $x > y$
2. $y > x$
3. $x = y$
4. Cannot be determined

Correct Answer - **(1)**

Let us assume the value of x to be 10%.

Therefore, the number of sheep in the herd at the beginning of year 2001 (end of 2000) will be 1 million + 10% of 1 million = 1.1 million

In 2001, the numbers decrease by $y\%$ and at the end of the year the number sheep in the herd = 1 million.

i.e., 0.1 million sheep have died in 2001.

In terms of the percentage of the number of sheep alive at the beginning of 2001, it

will be $\frac{0.1}{1.1} \times 100$ % = 9.09%.

From the above illustration it is clear that $x > y$.

Question 3 »

In an election contested by two parties, Party D secured 12% of the total votes more than Party R. If party R got 132,000 votes, by how many votes did it lose the election?

- (1) 300,000
- (2) 168,000
- (3) 36,000
- (4) 24,000

Correct Answer - **(3)**

Let the percentage of the total votes secured by Party D be $x\%$
Then the percentage of total votes secured by Party R = $(x - 12)\%$

As there are only two parties contesting in the election, the sum total of the votes secured by the two parties should total up to 100%

$$\begin{aligned} \text{i.e., } x + x - 12 &= 100 \\ 2x - 12 &= 100 \\ \text{or } 2x &= 112 \text{ or } x = 56\%. \end{aligned}$$

If Party D got 56% of the votes, then Party got $(56 - 12) = 44\%$ of the total votes.

44% of the total votes = 132,000

$$\begin{aligned} \text{i.e., } \frac{44}{100} \times T &= 132,000 \\ \text{\textcircled{d}} \quad T &= \frac{132,000 \times 100}{44} = 300,000 \text{ votes.} \end{aligned}$$

The margin by which Party R lost the election = 12% of the total votes
= 12% of 300,000 = 36,000.

Question 4 »

A candidate who gets 20% marks fails by 10 marks but another candidate who gets 42% marks gets 12% more than the passing marks. Find the maximum marks.

- (1) 50
- (2) 100
- (3) 150
- (4) 200

Correct Answer - **(2)**

From the given statement pass percentage is $42\% - 12\% = 30\%$

By hypothesis, 30% of $x - 20\%$ of $x = 10$ (marks)

$$\text{i.e., } 10\% \text{ of } x = 10$$

Therefore, $x = 100$ marks.

Question 5 »

When processing flower-nectar into honeybees' extract, a considerable amount of water gets reduced. How much flower-nectar must be processed to yield 1kg of honey, if nectar contains 50% water, and the honey obtained from this nectar contains 15% water?

- (1) 1.5 kgs
- (2) 1.7 kgs
- (3) 3.33 kgs
- (4) None of these

Correct Answer - **(2)**

Flower-nectar contains 50% of non-water part.
In honey this non-water part constitutes 85% (100-15).

Therefore $0.5 \times \text{Amount of flower-nectar} = 0.85 \times \text{Amount of honey} = 0.85 \times 1 \text{ kg}$

Therefore amount of flower-nectar needed = $(0.85/0.5) * 1\text{kg} = 1.7 \text{ kg}$.

Question 6 »

A vendor sells 60 percent of apples he had and throws away 15 percent of the remainder. Next day he sells 50 percent of the remainder and throws away the rest. What percent of his apples does the vendor throw?

- (1) 17
- (2) 23
- (3) 77
- (4) None of these

Correct Answer - **(2)**

Let the number of apples be 100.

On the first day he sells 60% apples i.e., 60 apples. Remaining apples = 40.

He throws 15% of the remaining i.e., 15% of 40 = 6. Now he has $40 - 6 = 34$ apples

The next day he throws 50% of the remaining 34 apples i.e., 17.

Therefore in all he throws $6 + 17 = 23$ apples.

Question 7 »

If the cost price of 20 articles is equal to the selling price of 16 articles, What is the percentage of profit or loss that the merchant makes?

- (1) 20% Profit
- (2) 25% Loss
- (3) 25% Profit
- (4) 33.33% Loss

Correct Answer - **(3)**

Let Cost price of 1 article be Re.1.

Therefore, Cost price of 20 articles = Rs. 20.

Selling price of 16 articles = Rs. 20

Therefore, Selling price of 20 articles = $(20/16) * 20 = 25$

Profit = Selling price - Cost price

$$= 25 - 20 = 5$$

Percentage of profit = Profit / Cost price * 100.

$$= 5 / 20 * 100 = 25\% \text{ Profit}$$

Question 8 »

30% of the men are more than 25 years old and 80% of the men are less than or equal to 50 years old. 20% of all men play football. If 20% of the men above the age of 50 play football, what percentage of the football players are less than or equal to 50 years?

- (1) 15%
- (2) 20%
- (3) 80%
- (4) 70%

Correct Answer - **(3)**

20% of the men are above the age of 50 years. 20% of these men play football. Therefore, 20% of 20% of 4% of the total men are football players above the age of 50 years.

20% of the men are football players. Therefore, 16% of the men are football players below the age of 50 years.

Therefore, the % of men who are football players and below the age of 50 =

$$\frac{16}{20} * 100 = 80\%$$

Question 9 »

If the price of petrol increases by 25%, by how much must a user cut down his consumption so that his expenditure on petrol remains constant?

- (1) 25%
- (2) 16.67%
- (3) 20%
- (4) 33.33%

Correct Answer - **(3)**

Let the price of petrol be Rs.100 per litre. Let the user use 1 litre of petrol. Therefore, his expense on petrol = $100 * 1 = \text{Rs.}100$

Now, the price of petrol increases by 25%. Therefore, the new price of petrol = Rs.125.

As he has to maintain his expenditure on petrol constant, he will be spending only Rs.100 on petrol.

Let 'x' be the number of litres of petrol he will use at the new price.

Therefore, $125 * x = 100 \Rightarrow x = \frac{100}{125} = \frac{4}{5} = 0.8$ litres.

He has cut down his petrol consumption by 0.2 litres = $\frac{0.2}{1} \times 100 = 20\%$ reduction.

There is a short cut for solving this problem.

If the price of petrol has increased by 25%, it has gone up $\frac{1}{4}$ of its earlier price. Therefore, the % of reduction in petrol that will maintain the amount of money spent

on petrol constant = $\frac{1}{4+1} = \frac{1}{5} = 20\%$

i.e. Express the percentage as a fraction. Then add the numerator of the fraction to the denominator to obtain a new fraction. Convert it to percentage - that is the answer.

Question 10 »

Peter got 30% of the maximum marks in an examination and failed by 10 marks. However, Paul who took the same examination got 40% of the total marks and got 15 marks more than the passing marks. What was the passing marks in the examination?

- (1) 35
- (2) 250
- (3) 75
- (4) 85

Correct Answer - **(4)**

Let 'x' be the maximum marks in the examination.

Therefore, Peter got 30% of $x = \frac{30}{100}x = 0.3x$

And Paul got 40% of $x = \frac{40}{100}x = 0.4x$.

In terms of the maximum marks Paul got $0.4x - 0.3x = 0.1x$ more than Peter. — (1)

The problem however, states that Paul got 15 marks more than the passing mark and Peter got 10 marks less than the passing mark.

Therefore, Paul has got $15 + 10 = 25$ marks more than Peter. — (2)

Equating (1) and (2), we get

$$0.1x = 25 \Rightarrow x = \frac{25}{0.1} = 250$$

'x' is the maximum mark and is equal to 250 marks.

We know that Peter got 30% of the maximum marks. Therefore, Peter got

$$\frac{30}{100} \times 250 = 75 \text{ marks.}$$

We also know that Peter got 10 marks less than the passing mark. Therefore, the passing mark will be 10 marks more than what Peter got = $75 + 10 = 85$.

A collection of questions that typically appear from the topic of Permutation and Combination.

1. **Question 1:** A college has 10 basketball players. A 5-member team and a captain will be selected out of these 10 players. How many different selections can be made?
2. **Question 2:** Badri has 9 pairs of dark Blue socks and 9 pairs of Black socks. He keeps them all in a same bag. If he picks out three socks at random what is the probability he will get a matching pair?
3. **Question 3:** How many words of 4 consonants and 3 vowels can be made from 12 consonants and 4 vowels, if all the letters are different?
4. **Question 4:** If the letters of the word CHASM are rearranged to form 5 letter words such that none of the word repeat and the results arranged in ascending order as in a dictionary what is the rank of the word CHASM?
5. **Question 5:** How many four letter distinct initials can be formed using the alphabets of English language such that the last of the four words is always a consonant?
6. **Question 6:** When four fair dice are rolled simultaneously, in how many outcomes will at least one of the dice show 3?
7. **Question 7:** In how many ways can the letters of the word EDUCATION be rearranged so that the relative position of the vowels and consonants remain the same as in the word EDUCATION?

8. **Question 8:** How many ways can 10 letters be posted in 5 post boxes, if each of the post boxes can take more than 10 letters?
9. **Question 9:** How many numbers are there between 100 and 1000 such that atleast one of their digits is 6?
10. **Question 10:** A team of 8 students goes on an excursion, in two cars, of which one can seat 5 and the other only 4. In how many ways can they travel?
11. **Question 11:** How many ways can 4 prizes be given away to 3 boys, if each boy is eligible for all the prizes?
12. **Question 12:** There are 12 yes or no questions. How many ways can these be answered?
13. **Question 13:** How many words can be formed by re-arranging the letters of the word ASCENT such that A and T occupy the first and last position respectively?
14. **Question 14:** Four dice are rolled simultaneously. What is the number of possible outcomes in which at least one of the die shows 6?
15. **Question 15:** How many alphabets need to be there in a language if one were to make 1 million distinct 3 digit initials using the alphabets of the language?
16. **Question 16:** In how many ways can the letters of the word MANAGEMENT be rearranged so that the two As do not appear together?
17. **Question 17:** There are 5 Rock songs, 6 Carnatic songs and 3 Indi pop songs. How many different albums can be formed using the above repertoire if the albums should contain at least 1 Rock song and 1 Carnatic song?
18. **Question 18:** What is the value of $1*1! + 2*2! + 3!*3! + \dots + n*n!$, where $n!$ means n factorial or $n(n-1)(n-2)\dots 1$

19. **Question 19:** How many number of times will the digit '7' be written when listing the integers from 1 to 1000?

Question 1 > A tank is fitted with 8 pipes, some of them that fill the tank and others that are waste pipe meant to empty the tank. Each of the pipes that fill the tank can fill it in 8 hours, while each of those that empty the tank can empty it in 6 hours. If all the pipes are kept open when the tank is full, it will take exactly 6 hours for the tank to empty. How many of these are fill pipes?

Question 2 > If A and B work together, they will complete a job in 7.5 days. However, if A works alone and completes half the job and then B takes over and completes the remaining half alone, they will be able to complete the job in 20 days. How long will B alone take to do the job if A is more efficient than B?

Question 3 > Working together, A and B can do a job in 6 days. B and C can do the same job in 10 days, while C and A can do it in 7.5 days. How long will it take if all A, B and C work together to complete the job?

Question 4 > Pipe A fills a tank of 700 litres capacity at the rate of 40 litres a minute. Another pipe B fills the same tank at the rate of 30 litres a minute. A pipe at the bottom of the tank drains the tank at the rate of 20 litres a minute. If pipe A is kept open for a minute and then closed and pipe B is kept open for a minute and then closed and then pipe C is kept open for a minute and then closed and the cycle repeated, how long will it take for the empty tank to overflow?

Question 5 > There are 12 pipes that are connected to a tank. Some of them are fill pipes and the others are drain pipes. Each of the fill pipes can fill the tank in 8 hours and each of the drain pipes can drain the tank completely in 6 hours. If all the fill pipes and drain pipes are kept open, an empty tank gets filled in 24 hours. How many of the 12 pipes are fill pipes?

Question 6 > Four men and three women can do a job in 6 days. When five men and six women work on the same job, the work gets completed in 4 days. How long will a woman take to do the job, if she works alone on it?

Question 7 > A pump can be used either to fill or to empty a tank. The capacity of the tank is 3600 m^3 . The emptying capacity of the pump is $10 \text{ m}^3/\text{min}$ higher than its filling capacity. What is the emptying capacity of the pump if the pump needs 12 more minutes to fill the tank than to empty it?

Question 8 > Shyam can do a job in 20 days, Ram in 30 days and Singhal in 60 days. If Shyam is helped by Ram and Singhal every 3rd day, how long will it take for them to complete the job?

Question 9 > Pipe A usually fills a tank in 2 hours. On account of a leak at the bottom of the tank, it takes pipe A 30 more minutes to fill the tank. How long will the leak take to empty a full tank if pipe A is shut?

Question 10 > There are 12 pipes attached to a tank. Some of them are fill pipes and some are drain pipes. Each of the fill pipes can fill the tank in 12 hours, while each of the drain pipes will take 24 hours to drain a full tank completely. If all the

pipes are kept open when the tank was empty, it takes 2 hours for the tank to overflow. How many of these pipes are drain pipes?

Question 11 > Two workers A and B manufactured a batch of identical parts. A worked for 2 hours and B worked for 5 hours and they did half the job. Then they worked together for another 3 hours and they had to do $(1/20)$ th of the job. How much time does B take to complete the job, if he worked alone?

Question 12 > Pipe A can fill a tank in 'a' hours. On account of a leak at the bottom of the tank it takes thrice as long to fill the tank. How long will the leak at the bottom of the tank take to empty a full tank, when pipe A is kept closed?

Question 13 > A and B working together can finish a job in T days. If A works alone and completes the job, he will take T + 5 days. If B works alone and completes the same job, he will take T + 45 days. What is T?

Question 14 > A man can do a piece of work in 60 hours. If he takes his son with him and both work together then the work is finished in 40 hours. How long will the son take to do the same job, if he worked alone on the job?

Question 15 > A, B and C can do a work in 5 days, 10 days and 15 days respectively. They started together to do the work but after 2 days A and B left. C did the remaining work (in days).

Question 16 > X alone can do a piece of work in 15 days and Y alone can do it in 10 days. X and Y undertook to do it for Rs. 720. With the help of Z they finished it in 5 days. How much is paid to Z?

Question 17 > Ram starts working on a job and works on it for 12 days and completes 40% of the work. To help him complete the work, he employs Ravi and together they work for another 12 days and the work gets completed. How much more efficient is Ram than Ravi?

Question 18 > A red light flashes 3 times per minute and a green light flashes 5 times in two minutes at regular intervals. If both lights start flashing at the same time, how many times do they flash together in each hour?

Question 19 > A and B can do a piece of work in 21 and 24 days respectively. They started the work together and after some days A leaves the work and B completes the remaining work in 9 days. After how many days did A leave?

Question 20 : Ram, who is half as efficient as Krish, will take 24 days to complete a work if he worked alone. If Ram and Krish worked together, how long will they take to complete the work?

Question 21 : A can complete a project in 20 days and B can complete the same project in 30 days. If A and B start working on the project together and A quits 10 days before the project is completed, in how many days will the project be completed?

A collection of questions that typically appear on Probability in MBA entrance exams such as XAT, TANCET, CAT and PGSEM Practice Test.

1. **Question 1:** What is the probability of getting at least one six in a single throw of three unbiased dice?
2. **Question 2:** What is the probability that a two digit number selected at random will be a multiple of '3' and not a multiple of '5'?
3. **Question 3:** A man bets on number 16 on a roulette wheel 14 times and losses each time. On the 15th span he does a quick calculation and finds out that the number 12 had appeared twice in the 14 spans and is therefore, unable to decide whether to bet on 16 or 12 in the 15th span. Which will give him the best chance and what are the odds of winning on the bet that he takes? (Roulette has numbers 1 to 36)
4. **Question 4:** Two squares are chosen at random on a chessboard. What is the probability that they have a side in common?
5. **Question 5:** When two dice are thrown simultaneously, what is the probability that the sum of the two numbers that turn up is less than 11?
6. **Question 6:** When 4 dice are thrown, what is the probability that the same number appears on each of them?
7. **Question 7:** An experiment succeeds twice as often as it fails. What is the probability that in the next 5 trials there will be four successes?
8. **Question 8:** An anti aircraft gun can fire four shots at a time. If the probabilities of the first, second, third and the last shot hitting the enemy aircraft are 0.7, 0.6, 0.5 and 0.4, what is the probability that four shots aimed at an enemy aircraft will bring the aircraft down?
9. **Question 9:** A number is selected at random from first thirty natural numbers. What is the chance that it is a multiple of either 3 or 13?
10. **Question 10:** A man can hit a target once in 4 shots. If he fires 4 shots in succession, what is the probability that he will hit his target?

A collection of questions that typically appear from the topics of Profit, Loss and Discounts.

1. **Question 1** » If a merchant offers a discount of 40% on the marked price of his goods and thus ends up selling at cost price, what was the % mark up?
2. **Question 2** » If a merchant offers a discount of 30% on the list price, then she makes a loss of 16%. What % profit or % loss will she make if she sells at a discount of 10% of the list price?
3. **Question 3** » A merchant marks his goods up by 60% and then offers a discount on the marked price. If the final selling price after the discount results in the merchant making no profit or loss, what was the percentage discount offered by the merchant? [**Explanatory Answer**](#)»
4. **Question 4** » A merchant marks his goods up by 75% above his cost price. What is the maximum % discount that he can offer so that he ends up selling at no profit or loss?
5. **Question 5** » A merchant marks his goods in such a way that the profit on sale of 50 articles is equal to the selling price of 25 articles. What is his profit margin?
6. **Question 6** » Two merchants sell, each an article for Rs.1000. If Merchant A computes his profit on cost price, while Merchant B computes his profit on selling price, they end up making profits of 25% respectively. By how much is the profit made by Merchant B greater than that of Merchant A? **Question 7** » One year payment to the servant is Rs. 200 plus one shirt. The servant leaves after 9 months and receives Rs. 120 and a shirt. Then find the price of the shirt.
7. **Question 8** » If apples are bought at the rate of 30 for a rupee. How many apples must be sold for a rupee so as to gain 20%?
8. **Question 9** » A trader buys goods at a 19% discount on the label price. If he wants to make a profit of 20% after allowing a discount of 10%, by what % should his marked price be greater than the original label price?
9. **Question 10** » Rajiv sold an article for Rs.56 which cost him Rs.x. If he had gained x% on his outlay, what was his cost?
10. **Question 11** » A trader professes to sell his goods at a loss of 8% but weights 900 grams in place of a kg weight. Find his real loss or gain per cent.
-
11. **Question 12** » A merchant buys two articles for Rs.600. He sells one of them at a profit of 22% and the other at a loss of 8% and makes no profit or loss in the end. What is the selling price of the article that he sold at a loss?
12. **Question 13** » A trader makes a profit equal to the selling price of 75 articles when he sold 100 of the articles. What % profit did he make in the transaction?

A collection of questions that typically appear from the topics Sequences and Series - AP, GP and HP.

1. **Question 1:** What is the sum of all 3 digit numbers that leave a remainder of '2' when divided by 3?
2. **Question 2:** Obtain the sum of all positive integers up to 1000, which are divisible by 5 and not divisible by 2.
3. **Question 3:** The sum of the three numbers in A.P is 21 and the product of their extremes is 45. Find the numbers.
4. **Question 4:** A piece of equipment cost a certain factory Rs. 600,000. If it depreciates in value, 15% the first year, 13.5 % the next year, 12% the third year, and so on, what will be its value at the end of 10 years, all percentages applying to the original cost?
5. **Question 5:** The sum of third and ninth term of an A.P is 8. Find the sum of the first 11 terms of the progression.
6. **Question 6:** Given $A = 2^{65}$ and $B = (2^{64} + 2^{63} + 2^{62} + \dots + 2^0)$

Question 1 > In a km race, A gives B a start of 20 seconds and beats him by 40m. However, when he gives B a start of 25 seconds they finish in a dead heat. What is A's speed in m/sec?

Question 2 > A takes 3 min 45 seconds to complete a kilometre. B takes 4 minutes to complete the same 1 km track. If A and B were to participate in a race of 2 kms, how much start can A give B in terms of distance?

Question 3 > In a kilometre race, A can give B a start of 100 m or 15 seconds. How long does A take to complete the race?

Question 4 > A gives B a start of 10 metres in a 100 metre race and still beats him by 1.25 seconds. How long does B take to complete the 100 metre race if A runs at the rate of 10 m/sec?

Question 5 > A predator is chasing its prey. The predator takes 4 leaps for every 6 leaps of the prey and the predator covers as much distance in 2 leaps as 3 leaps of the prey. Will the predator succeed in getting its food?

Question 6 > A skating champion moves along the circumference of a circle of radius 21 meters in 44 seconds. How many seconds will it take her to move along

the perimeter of a hexagon of side 42 meters?

Question 7 > A runs $\frac{13}{5}$ times as fast as B. If A gives a start of 240m, how far must the post be so that A and B might reach at the same time.

Question 8 > P can give Q a start of 20 seconds in a kilometer race. P can give R a start of 200 meters in the same kilometer race. And Q can give R a start of 20 seconds in the same kilometer race. How long does P take to run the kilometer?

Question 9 > A gives B a start of 30 seconds in a km race and still beats him by 20 m. However, when he gives B a start of 35 seconds, they finish the race in a dead heat. How long does A take to run the km?

Question 10 > Three runners A, B and C run a race, with runner A finishing 12 meters ahead of runner B and 18 meters ahead of runner C, while runner B finishes 8 meters ahead of runner C. Each runner travels the entire distance at a constant speed.

What was the length of the race?

Question 11 > A can give B a start of 50 metres or 10 seconds in a kilometer race. How long does A take to complete the race?

Question 12 > A can give B 20 points, A can give C 32 points and B can give C 15 points. How many points make the game?

Question 1 > Rs.432 is divided amongst three workers A, B and C such that 8 times A's share is equal to 12 times B's share which is equal to 6 times C's share. How much did A get?

Question 2 > If 20 men or 24 women or 40 boys can do a job in 12 days working for 8 hours a day, how many men working with 6 women and 2 boys take to do a job four times as big working for 5 hours a day for 12 days?

Question 3 > Two cogged wheels of which one has 32 cogs and other 54 cogs, work into each other. If the latter turns 80 times in three quarters of a minute, how often does the other turn in 8 seconds?

Question 4 > The monthly incomes of A and B are in the ratio 4 : 5, their expenses are in the ratio 5 : 6. If 'A' saves Rs.25 per month and 'B' saves Rs.50 per month, what are their respective incomes?

Question 5 > The proportion of milk and water in 3 samples is 2:1, 3:2 and 5:3. A mixture comprising of equal quantities of all 3 samples is made. The proportion of milk and water in the mixture is

Question 6 > A group of workers can do a piece of work in 24 days. However as 7 of them were absent it took 30 days to complete the work. How many people actually worked on the job to complete it?

Question 7 > A, B and C play cricket. A's runs are to B's runs and B's runs are to C's as 3:2. They get altogether 342 runs. How many runs did A make?

Question 8 > The monthly salaries of two persons are in the ratio of 4:7. If each receives an increase of Rs.25 in the salary, the ratio is altered to 3: 5. Find their respective salaries.

Question 9 > A fort has provisions for 60 days. If after 15 days 500 men strengthen them and the food lasts 40 days longer, how many men are there in the fort?

Question 10 > The ratio of marks obtained by Vinod and Basu is 6:5. If the combined average of their percentage is 68.75 and their sum of the marks is 275, find the total marks for which exam was conducted.

Question 11 > The present ages of A and B are as 6 : 4. Five years ago their ages were in the ratio 5 : 3. Find their present ages.

Question 12 > A, B and C enter into a partnership by investing Rs.3600, Rs.4400 and Rs.2800. A is a working partner and gets a fourth of the profit for his services and the remaining profit is divided amongst the three in the ratio of their investments. What is the amount of profit that B gets if A gets a total of Rs. 8000?

Question 13 > A, B and C, each of them working alone can complete a job in 6, 8 and 12 days respectively. If all three of them work together to complete a job and earn Rs.2340, what will be C's share of the earnings?

A collection of questions that typically appear from the topic of set theory.

1. **Question 1** » In a class of 120 students numbered 1 to 120, all even numbered students opt for Physics, those whose numbers are divisible by 5 opt for Chemistry and those whose numbers are divisible by 7 opt for Math. How many opt for none of the three subjects?
2. **Question 2** » Of the 200 candidates who were interviewed for a position at a call center, 100 had a two-wheeler, 70 had a credit card and 140 had a mobile phone. 40 of them had both, a two-wheeler and a credit card, 30 had both, a credit card and a mobile phone and 60 had both, a two-wheeler and mobile phone and 10 had all three. How many candidates had none of the three?

Question 1 > A father left a will of Rs.35 lakhs between his two daughters aged 8.5 and 16 such that they may get equal amounts when each of them reach the age of 21 years. The original amount of Rs.35 lakhs has been instructed to be invested at 10% p.a. simple interest. How much did the elder daughter get at the time of the will?

Question 2 > What will Rs.1500 amount to in three years if it is invested in 20% p.a. compound interest, interest being compounded annually?

Question 3 > If a sum of money grows to $144/121$ times when invested for two years in a scheme where interest is compounded annually, how long will the same sum of money take to treble if invested at the same rate of interest in a scheme where interest is computed using simple interest method?

Question 4 > The population of a town was 3600 three years back. It is 4800 right now. What will be the population three years down the line, if the rate of growth of population has been constant over the years and has been compounding annually?

Question 5 > A man invests Rs.5000 for 3 years at 5% p.a. compound interest reckoned yearly. Income tax at the rate of 20% on the interest earned is deducted at the end of each year. Find the amount at the end of the third year.

Question 6 > The difference between the compound interest and the simple interest on a certain sum at 12% p.a. for two years is Rs.90. What will be the value of the amount at the end of 3 years?

Question 7 > A stairway 10ft high is such that each step accounts for half a foot upward and one-foot forward. What distance will an ant travel if it starts from ground level to reach the top of the stairway?

Question 8 > A sum of money invested for a certain number of years at 8% p.a. simple interest grows to Rs.180. The same sum of money invested for the same number of years at 4% p.a. simple interest grows to Rs.120 only. For how many years was the sum invested?

Question 9 > How long will it take for a sum of money to grow from Rs.1250 to Rs.10,000, if it is invested at 12.5% p.a simple interest?

Question 10 > Rs. 5887 is divided between Shyam and Ram, such that Shyam's share at the end of 9 years is equal to Ram's share at the end of 11 years, compounded annually at the rate of 5%. Find the share of Shyam.

Question 11 > The question for the day is from the topic simple and compound interest. Shawn invested one half of his savings in a bond that paid simple interest for 2 years and received Rs.550 as interest. He invested the remaining in a bond that paid compound interest, interest being compounded annually, for the same 2 years at the same rate of interest and received Rs.605 as interest. What was the value of his total savings before investing in these two bonds?

Question 1 > Train A traveling at 60 km/hr leaves Mumbai for Delhi at 6 P.M. Train B traveling at 90 km/hr also leaves Mumbai for Delhi at 9 P.M. Train C leaves Delhi for Mumbai at 9 P.M. If all three trains meet at the same time between Mumbai and Delhi, what is the speed of Train C if the distance between Delhi and Mumbai is 1260 kms?

Question 2 > Two trains, 200 and 160 meters long take a minute to cross each other while traveling in the same direction and take only 10 seconds when they cross in opposite directions. What are the speeds at which the trains are traveling?

Question 3 > An express train traveling at 72 km/hr speed crosses a goods train traveling at 45 km/hr speed in the opposite direction in half a minute. Alternatively, if the express train were to overtake the goods train, how long will it take to accomplish the task. Assume that the trains continue to travel at the same respective speeds as mentioned in case 1.

Question 4 > A boat travels from point A to point B upstream and returns from point B to point A downstream. If the round trip takes the boat 5 hours and the distance between point A and point B is 120 kms and the speed of the stream is 10 km/hr, how long did the upstream journey take?

Question 5 > A train travels at an average speed of 90 km/hr without any stoppages. However, its average speed decrease to 60km/hr on account of stoppages. On an average, how many minutes per hour does the train stop?

Question 6 > Two trains A and B start simultaneously from stations X and Y towards each other respectively. After meeting at a point between X and Y, train A reaches station Y in 9 hours and train B reaches station X in 4 hours from the time they have met each other. If the speed of train A is 36 km/hr, what is the speed of train B?

Question 7 > A man goes from city A to city B situated 60 kms apart by a boat. His onward journey was with the stream while the return journey was an upstream journey. It took him four and half hours to complete the round trip. If the speed of the stream is 10 km/hr, how long did it take him to complete the onward journey?

Question 8 > A man moves from A to B at the rate of 4 km/hr. Had he moved at the rate of 3.67 km/hr, he would have taken 3 hours more to reach the destination. What is the distance between A and B?

Question 9 > A ship develops a leak 12 km from the shore. Despite the leak, the

ship is able to move towards the shore at a speed of 8 km/hr. However, the ship can stay afloat only for 20 minutes. If a rescue vessel were to leave from the shore towards the ship, and it takes 4 minutes to evacuate the crew and passengers of the ship, what should be the minimum speed of the rescue vessel in order to be able to successfully rescue the people aboard the ship?

Question 10 > A man driving his bike at 24 kmph reaches his office 5 minutes late. Had he driven 25% faster on an average he would have reached 4 minutes earlier than the scheduled time. How far is his office?

Question 11 > When an object is dropped, the number of feet N that it falls is given by the formula $N = \frac{1}{2}gt^2$ where t is the time in seconds from the time it was dropped and g is 32.2. If it takes 5 seconds for the object to reach the ground, how many feet does it fall during the last 2 seconds?

Question 12 > If the wheel of a bicycle makes 560 revolutions in travelling 1.1 km, what is its radius?

Question 13 > Rajesh traveled from city A to city B covering as much distance in the second part as he did in the first part of this journey. His speed during the second part was twice as that of the speed during the first part of the journey. What is his average speed of journey during the entire travel?

Question 14 > Two boys begin together to write out a booklet containing 535 lines. The first boy starts with the first line, writing at the rate of 100 lines an hour; and the second starts with the last line then writes line 534 and so on, backward proceeding at the rate of 50 lines an hour. At what line will they meet?

Question 15 > A man and a woman 81 miles apart from each other, start travelling towards each other at the same time. If the man covers 5 miles per hour to the woman's 4 miles per hour, how far will the woman have travelled when they meet?

Question 16 > The speed of a motor boat itself is 20 km/h and the rate of flow of the river is 4 km/h. Moving with the stream the boat went 120 km. What distance will the boat cover during the same time going against the stream?

Question 17 > Two friends A and B run around a circular track of length 510 metres, starting from the same point, simultaneously and in the same direction. A who runs faster laps B in the middle of the 5th round. If A and B were to run a 3 km race long race, how much start, in terms of distance, should A give B so that they finish the race in a dead heat?

Question 18 > A passenger train covers the distance between stations X and Y, 50 minutes faster than a goods train. Find this distance if the average speed of the passenger train is 60 kmph and that of goods train is 20 kmph.

Question 19 > I travel the first part of my journey at 40 kmph and the second part at 60 kmph and cover the total distance of 240 km to my destination in 5 hours. How long did the first part of my journey last?

Question 20 > By walking at $\frac{3}{4}$ th of his usual speed, a man reaches office 20 minutes later than usual. What is his usual time?

Question 21 › Three friends A, B and C run around a circular track of length 120 metres at speeds of 5 m/s, 7 m/sec and 15 m/sec, starting simultaneously from the same point and in the same direction. How often will the three of them meet?

Question 22 › Yana and Gupta leave points x and y towards y and x respectively simultaneously and travel in the same route. After meeting each other on the way, Yana takes 4 hours to reach her destination, while Gupta takes 9 hours to reach his destination. If the speed of Yana is 48 km/hr, what is the speed of Gupta?

Question 23 › Ram covers a part of the journey at 20 kmph and the balance at 70 kmph taking total of 8 hours to cover the distance of 400 km. How many hours has been driving at 20 kmph?

Question 24 › A man can row 50 km upstream and 72 km downstream in 9 hours. He can also row 70 km upstream and 90 km downstream in 12 hours. Find the rate of current.

Question 25 › Jim travels the first 3 hours of his journey at 60 mph speed and the remaining 5 hours at 24 mph speed. What is the average speed of Jim's travel in mph?

Question 26 › A train traveling at 100 kmph overtakes a motorbike traveling at 64 kmph in 40 seconds. What is the length of the train in meters?

Question 27 › A train traveling at 72 kmph crosses a platform in 30 seconds and a man standing on the platform in 18 seconds. What is the length of the platform in meters?

A collection of questions that typically appear from the topic of trigonometry.

1. **Question** › 'a' and 'b' are the lengths of the base and height of a right angled triangle whose hypotenuse is 'h'. If the values of 'a' and 'b' are positive integers, which of the following cannot be a value of the square of the hypotenuse?
2. **Question** › The angle of elevation of the top of a tower 30 m high, from two points on the level ground on its opposite sides are 45 degrees and 60 degrees. What is the distance between the two points?
3. **Question** › What is the value of $\cot 15^\circ + \cot 75^\circ + \cot 135^\circ - \operatorname{cosec} 30^\circ$?
4. **Question** › A spherical ball of radius 'r' placed on the ground subtends an angle of 60° at point A of the ground. What is the distance between the center of the ball and the point A?
5. **Question** › What is the value of $(1 - \cos A) / (1 + \cos A)$ given that $\tan A = \frac{3}{4}$?

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