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Maths Questions for CLAT Exam.

CLAT Maths Quiz 34

Directions: Read the following Questions carefully and choose the right answer:

1. If the square of the sum of two numbers is equal to 4 times of their product, then ratio of these numbers is

A. 1 : 2   B. 2 : 1   C. 1 : 3   D. 1 : 1

2. A cricket player has a mean score of 70 runs in 12 innings. Find out how many runs should be score in his next innings to raise the mean score to 75.

A. 135   B. 130   C. 140   D. 137.5

3. A number of boys raised Rs. 900 for a famine relief fund, each boy giving as many 25 paise coins as there were total boys. The number of boys were?

A. 40   B. 50   C. 55   D. 60

4. A train 300 m long running at 36 kmph takes 55 seconds to cross a tunnel. Length of tunnel is

A. 150   B. 250   C. 350   D. 400

5. Ramesh has to pay Rs. 1261 as compound interest for 3 years at 5% per annum. Find the principal he lent:

A. Rs. 6000   B. Rs. 7500   C. Rs. 8000   D. Rs. 9000

6. If there is profit of 25% on the cost price, the percentage of profit on sales price is

A. 10%   B. 15%   C. 20%   D. 30%

7. The length of the chord of a circle is 10 cm and perpendicular distance between the centre and the chord is 12 cm. then the radius of the circle is:

A. 15 cm   B. 13 cm   C. 18 cm   D. 21 cm

8. Spheres A and B have their radii 90 cm and 40 cm respectively. Ratio of surface area of A to the surface area of B is

A. 81 : 16   B. 4 : 81   C. 1 : 4   D. 16 : 18

9. In a village 80% of the total population is illiterate. If the total population of the village is 1 lakh. Then the numbers of literate:

A. 10,000   B. 20,000   C. 25,000   D. 30,000

10. **A sum of Rs. 2000 is divided into two parts such that the interest on the first part at 2% per annum and on second part at 3% per annum are equal. The interest on the smaller part for one year is:**

A. 20   B. 24   C. 36   D. 64

Correct Answers:

1	2	3	4	5	6	7	8	9	10
D	A	D	B	C	C	B	A	B	B

Explanations:

1. Let the two numbers be x and y.
so, $(x + y)^2 = 4xy$
$x^2 + y^2 + 2xy = 4xy$
$\Rightarrow x^2 + y^2 + 2xy - 4xy = 0$
$\Rightarrow x^2 + y^2 - 2xy = 0$
$\Rightarrow (x - y)^2 \Rightarrow x - y = 0$
x = y,
so, Ratio is 1 : 1
Hence, option D is correct.

2. To raise mean score to 75, he needs 5 runs for 12 innings each and 75 extra runs for the 13th innings.
So the runs required $\Rightarrow 75 + 12 \times 5 = 75 + 60 = 135$
Hence, option A is correct.

3. Let the number of boys be x.
As each boy gives as many 25 paise coins as there were total boys
so, the total no. of 25 paise coins = x^2
According to question
$\frac{25}{100} \times x^2 = 900$

Solving,
$\frac{1}{4} \times x^2 = 900$

$\Rightarrow x^2 = 900 \times 4 = 3600$
x = 60
So, the number of boys = 60

Hence, option D is correct.

4.

Speed = $\dfrac{\text{Distance}}{\text{time}}$

As, tunnel have no speed so the law of relative motion says

Speed = Speed of train

Distance = Length of train + length of tunnel

Let length of tunnel be x

So,

36 kmph = $\dfrac{300 \text{ m} + x}{55 \text{ seconds}}$

we need to convert 36 kmph into m/s

So, $36 \times \dfrac{5}{18}$ = 10 m/s Hence,

$10 = \dfrac{300 + x}{55}$ = 550 = 300 + x

x = 550 − 300 = 250

Hence, option B is correct.

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5. Let the principal be x,

C.I. = $P\left[\left(1 + \dfrac{R}{100}\right)^{T} - 1\right]$

$1261 = x\left[\left(1 + \dfrac{5}{100}\right)^{3} - 1\right]$

$1261 = x\left[\left(\dfrac{105}{100}\right)^{3} - 1\right]$

$1261 = x\left(\dfrac{9261}{8000} - 1\right)$

$x = \dfrac{1261 \times 8000}{1261}$
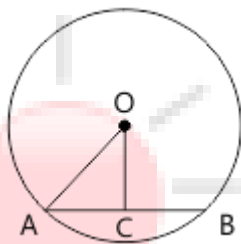
x = Rs. 8000

Hence, option C is correct.

6.
Let C.P. = 100
Now, as profit = 25%
So, S.P. = 125% of C.P.

$= \dfrac{125}{100} \times 100 = 125$

Hence, S.P. = 125
Now, we need to calculate
percentage of profit on sales price

$= \dfrac{25}{125} \times 100 = 20\%$

So, profit% on sales price is 20%

Hence, option C is correct.

7.

Here, AB is the chord of length 10 cm
i.e. AB = 10 cm.

So, AC = CB = $\dfrac{10}{2}$ = 5cm

⇒ AC = 5cm
Here, AO is the required length as AO is the radius of the circle & we know OC = 12 cm
Applying pythagoras theoram
⇒ $AC^2 + OC^2 = AO^2$
$AO^2 = (5)^2 + (12)^2$
$AO^2 = 25 + 144$
$AO^2 = 169$
$AO = \sqrt{169}$
AO = 13
So, the radius of the circle is 13 cm

Hence, option B is correct.

8.

$$\frac{\text{Surface area of A}}{\text{Surface area of B}} = \frac{4\pi R^2}{4\pi r^2}$$

R = Radius of A

r = Radius of B

$$= \frac{R^2}{r^2} = \frac{90 \times 90}{40 \times 40}$$

$$= \frac{9 \times 9}{4 \times 4} = \frac{81}{16}$$

= 81 : 16

Hence, option A is correct.

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9. 80% of population is illiterate so 20% is literate

Hence, 20% of 1 lakh

$$= \frac{20}{100} \times 1,00,000 = 20,000$$

Hence, option B is correct.

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10. Let x be a part

S.I.1 = S.I. 2

x × 2% = (2000 – x) × 3% (time is ame)

⇒ 2x = 2000 × 3 – 3x

⇒ 5x = 6000

x = 800

so, one part is 800 & another part is 1200

As we know,

Interest earned on smaller part = $\dfrac{800 \times 3 \times 1}{100}$

$$= \frac{800 \times 3}{100} = \text{Rs } 24$$

Hence, option B is correct.