Maths Questions for CLAT Exam

CLAT Maths Quiz 23

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

1. If the sum of three consecutive numbers is 15, what is the square of the middle number?

A. 49 B. 16

C. 25 D. 36

2. A is faster than B. A and B each walk 24 km. The sum of their speeds is 7 km/hr and the sum of time taken by them is 14 hours. Then, A's speed is equal to which of the following?

A. 3 km/hr B. 4 km/hr

C. 5 km/hr D. 7 km/hr

3. A cone is 20 metres high and the radius of its base is 5 metres. It is melted and recast in to a sphere. Find the diameter of the sphere?

A. 10 metres B. 8 meters

C. 12 meters D. 9 metres

4. If a merchant offers a discount of 20% on the marked price of his goods and thus ends up selling at cost price, what was the percentage mark up?

A. 28.57% B. 40%

C. 66.66% D. 25%

5. A sum of Rs. 8000 was lent partly at 7% and partly at 9% simple interest. If the total annual interest is Rs. 620, what is the ratio in which the money was lent at given rates?

A. 5 : 3 B. 4 : 3

C. 3 : 2 D. 2 : 1

6. The average age of students in a class is 15.8 yrs . The average age of boys in the class is 16.4 yrs and that of the girls is 15.4 yrs respectively. Find out the ratio of the number of boys to the number of girls in the class.

A. 3 : 1

B. 5 : 2

C. 2 : 3

D. 3 : 7

7. The ratio of present ages of Naina and Harshi is 4 : 6. After 6 years Harshi's age will be 42 years. What will be Naina's age after 12 years?

A. 22 years

B. 23 years

C. 36 years

D. 30 years

8. A work could be completed in 100 days by some workers. However, due to the absence of 10 workers, it was completed in 110 days. The original number of workers was

A. 100

B. 110

C. 55

D. 50

9. Rahul took a loan of Rs. 36000 at 20% compound interest, the interest being compounded annually. He repaid some amount at the end of the first year and then paid Rs. 28800 at the end of the second year and cleared the loan. The amount he paid at the end of the first year was.

A. 18400

B. 19200

C. 24400

D. 28200

10. If m and n are whole numbers such that $m^n = 121$, then the value of $(m - 1)^{n+1}$ is

A. 1

B. 10

C. 121

D. 1000

Correct Answers:

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

Explanations:

1. Let the first no. be x.

So, three consecutive numbers = x, x + 1, x + 2.

x + (x + 1) + (x + 2) = 15

or, 3x + 3 = 15

or, 3x = 15 – 3 = 12

∴ $x = \frac{12}{3} = 4$

The middle number is x + 1 = 4 + 1 = 5

∴ Square of the middle no = $(5)^2 = 25$

Hence, option C is correct.

2. Let A's speed = x km/hr

Then, B's speed = (7 – x) km/hr

So according the question

$\frac{24}{x} + \frac{24}{7-x} = 14$

24(7 – x) + 24x = 14x (7 – x)

$14x^2 – 98x + 168 = 0$

$x^2 – 7x + 12 = 0$

(x – 3) (x – 4) = 0

x = 3 or x = 4

Since, A is faster than B.

So, A's speed = 4 km/hr and B's speed = 3 km/hr

Hence, option (B) is correct.

3. Let the radius of the cone is r and of sphere is R.

$$\text{Volume of cone} = \frac{\pi \times r^2 \times h}{3} = \frac{\pi \times 5^2 \times 20}{3}$$

$$\text{Volume of sphere} = \frac{4 \times \pi \times R^3}{3}$$

According to question, Cone is melted and recast into sphere, therefore:

$$\frac{4 \times \pi \times R^3}{3} = \frac{\pi \times 5^2 \times 20}{3}$$

$$4 \times R^3 = 5^2 \times 20$$

$$R^3 = \frac{25 \times 20}{4} = 125$$

$$R^3 = 125$$

Radius of the sphere R = 5 metres.

As, Diameter = 2 × Radius

Hence, Diameter of sphere = 2 × R = 2 × 5 = 10 metres

Therefore, option (A) is correct.

4. A merchant offers a discount of 20% on the marked price of his goods and thus ends up selling at cost price.

Therefore, SP = CP

SP is 20% less than MP,

Hence, we have to find MP is how much % more than CP.

$$\frac{r}{100 - r} \times 100$$

Where, r = 20%

$$\frac{20}{100 - 20} \times 100 = 25\%.$$

Hence, option (D) is correct.

5. Let the money lent at 7% and 9% be Rs. x and Rs. (8000 – x) respectively.

$$SI = (x \times 1 \times \frac{7}{100}) + (8000 - x) \times 1 \times \frac{9}{100} = 620$$

$$\Rightarrow \frac{7x}{100} + 720 - \frac{9x}{100} = 620$$

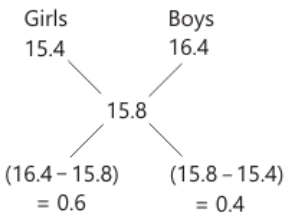
$$\Rightarrow \frac{2x}{100} = 100$$

$$\Rightarrow x = 5000$$

Money lent are is in the ratio = 5000 : (8000 – 5000) = 5 : 3

Hence, option (A) is correct.

6.



Clearly, ratio of Boys and Girls in the class i.e.

Boys : Girls = 0.4 : 0.6 = 2 : 3

Hence, option C is correct.

7. After 6 years, Harshi's age will be 42 years,

therefore,

Harshi's present age = 42 – 6 = 36 years.

As, the ratio of Naina's age and Harshi's age is 4 : 6, therefore,

Equating the ratios with real ages,

6 → 36

So, 1 → 6

Hence 4 = 24,

So the present age of Naina = 24 years ∴ Naina's age after 12 years = 24 + 12 = 36 years

Hence, option (C) is correct.

8. Let the original number of workers = x.

Unit of work = no. of days × no. of workers

Then, x × 100 = (x – 10) × 110

⇒ 10x = 11x – 110

⇒ 10x + 110 = 11x

⇒ x = 110

Hence, option B is correct.

9. Let the amount he paid at the end of the first year be x

Value of 36000 at the end of 1st year = 43200

The amount to be paid at the end of second year in order to clear the loan

$= (43200 - x) + \frac{20}{100} \times (43200 - x)$

Or, 1.2(43200 – x) = 28800

Or, x = 19200

Hence, option (B) is correct.

10. We know that,

$11^2 = 121$

Putting m = 11 and n = 2, we get

$(m - 1)^{n+1} = (11 - 1)^{2+1} = 10^3 = 1000$

Hence, option (D) is correct.