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Maths Questions for CLAT Exam.

CLAT Maths Quiz 39

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

1.

$$\frac{3 \text{ of } \dfrac{1}{15} \times \dfrac{7}{3} \text{ of } 6 + \dfrac{1}{5} + 8}{16 \times \dfrac{3}{2} \text{ of } 2 + 5 - 9} = ?$$

A. 0.2   B. 0.25   C. 0.3   D. 0.35

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2. Six bells commence tolling together and toll at intervals of 3, 6, 9, 12, 15 and 18 seconds respectively. In 30 minutes, how many times do they toll together?

A. 10 times   B. 11 times   C. 9 times   D. 12 times

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3. At a certain company the average (arithmetic mean) number of years of experience is 9.8 years for the male employees and 9.1 years for the female employees, if there are 52 male employees in the company and average number of years of experience for the company's male and female employees combined is 9.3 years, then find the number of female employees in this company.

A. 110   B. 120   C. 130   D. 140

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4. The number of seats in an auditorium is increased by 25%. The price on a ticket is also increased by 12%. What is the effect on the revenue collected?

A. 15%   B. 40%   C. 28%   D. 35%

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5. Find the amount on a sum of Rs. 800000 after 2 years at the rate of 1% per annum, compounded semi - annually.

A. Rs. 97240.5   B. Rs. 95680   C. Rs. 86540   D. Rs. 92880.5

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6. In a zoo, there are certain number of hens and rabbits. The total number of heads when counted is 200 and the total number of legs is 580. Find the number of rabbits.

A. 70   B. 90   C. 80   D. 85

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7. Ramesh and Suresh can do a work in 45 and 40 days respectively. They began the work together, but Ramesh left after some time and Suresh finished the remaining work in 23 days. After how many days did Ramesh leave?

A. 5 days   B. 7 days   C. 11 days   D. 9 days

8. A hare takes 9 leaps in the same time as a dog takes 4. But the dog's leap is 7/3 m while hare's only 1m. How many leaps will the dog have to take before catching up with the hare if the hare has a head start of 16 m?

A. 180   B. 192   C. 195   D. 171

9. If five times a number is subtracted from 20, the resultant is three times the same number added to 4, then what is the number?

A. 2   B. 1   C. 4   D. 8

10. If y + $\frac{1}{4y}$ = 1, then the value of 8y3 + $\frac{1}{8y^3}$ is

A. 2   B. 4   C. 6   D. 8

Correct Answers:

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

Explanations:

1.

$$\frac{3 \text{ of } \frac{1}{15} \times \frac{7}{3} \text{ of } 6 + \frac{1}{5} + 8}{16 \times \frac{3}{2} \text{ of } 2 + 5 - 9} = ?$$

$$= \frac{\frac{1}{5} \times 14 + \frac{1}{5} + 8}{16 \times 3 + 5 - 9} = \frac{\frac{15}{5} + 8}{48 + 5 - 9} = \frac{3 + 8}{48 - 4}$$

$$= \frac{11}{44} = \frac{1}{4} = 0.25$$

Hence, option B is correct

2.   LCM of 3, 6, 9, 12, 15, 18 is 180.
So, the bells will toll together after every 180 sec. i.e. 3 min.

in 30 min. they will toll together $\frac{30}{3}$ + 1 = 11 times

Hence, option B is correct.

3.   Let the number of female employees in the company be x.

∴ (52 + x) × 9.3 = 52 × 9.8 + x × 9.1

⇒ 52 × 9.3 + x × 9.3 = 52 × 9.8 + x × 9.1

⇒ 52 × (9.8 – 9.3) = x (9.3 – 9.1)

⇒ x = 52 × 0.5/0.2

⇒ x = 130

∴ Total number of female employee is 130.

Hence, option C is correct.

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4.   **Method I :**

Let the initial number of seats be 100 and price per ticket be Rs. 1.

Then, Revenue = Number of seats × Price per ticket.

Increased number of seats = $\dfrac{125}{100}$ × 100 = 125

Increased price of a ticket = $\dfrac{112}{100}$ × 1 = Rs. 1.12

Increased revenue = 125 × 1.12 = Rs. 140.

Percentage increase in revenue = 140 – 100 = 40%.

Method II :

Percentage increase = $x + y + \dfrac{x \times y}{100}$,

where x and y are the percentage increases.

∴ Percentage increase in revenue

= $25 + 12 + \dfrac{25 \times 12}{100}$ = 25 + 12 + 3 = 40%

Hence, option B is correct.

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5.   Here, n = 2 years × 2 = 4 periods

Similarly, R = $\dfrac{10}{2}$ = 5% (for half years) ; P = 80000

A = $80000 \left(1 + \dfrac{5}{100}\right)^{4}$ = Rs. 97240.5

Hence, option A is correct.

6. This problem can be done by alligation method.

The weighted average of legs vs heads $= \dfrac{580}{200} = 2.9$

Alligating the legs of hens and rabbits as follows :

Hen (2 legs)   Rabbit (4 legs)

```
        2       4
         \     /
           2.9
         /     \
       1.1     0.9
```

Hence, the ratio of the number of hens and rabbits is 11 : 9. So, the number of hens is 110 and the number of rabbits is 90 (as total number of animals is 200).

Hence, option B is correct.

7. Suresh works along for 23 days.

$\therefore$ Work done by Suresh in 23 days $= \dfrac{23}{40}$ work

$\therefore$ Work done by (Ramesh + Suresh) together

$= 1 - \dfrac{23}{40} = \dfrac{17}{40}$ work

Now, (Ramesh + Suresh) can complete the work in

$\dfrac{40 \times 45}{40 + 45} = \dfrac{40 \times 45}{85}$ days

$\therefore$ Time taken by (Ramesh + Suresh) to do 17/40 work

$= \dfrac{40 \times 45}{85} \times \dfrac{17}{40} = 9$ days

Hence, Ramesh left after 9 days.

Hence, option D is correct.

8.

Distance covered by the dog in 4 leaps $= 4 \times \dfrac{7}{3} = \dfrac{28}{3}$ m

Distance covered by the hare in 9 leaps $= 9 \times 1 = 9$m

Distance more covered by the dog w.r. to hare in 4 leaps

$= \dfrac{1}{3}$ m

Hence, for 1 m gain he has to make 12 leaps.
Number of leaps required by the dog to cover 16 m = 12 × 16 = 192 leaps.

Hence, option B is correct.

9. Let the number be x. Then,
$20 - 5x = 3x + 4$
$\Rightarrow 8x = 16 \Rightarrow x = 2.$
Hence, option A is correct.

10.

$y = \dfrac{1}{4y} = 1$

$\Rightarrow 2y + \dfrac{1}{2y} = 2$ (multiply by 2)

$\Rightarrow 8y^3 + \dfrac{1}{8y^3} + 3 \times 2y \times \dfrac{1}{2y}\left(2y + \dfrac{1}{2y}\right) = (2)^3$

(On cubing)

$\Rightarrow 8y^3 + \dfrac{1}{8y^3} + 3(2) = 8$

$\Rightarrow 8y^3 + \dfrac{1}{8y^3} = 2$

Hence, option A is correct.

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