Maths Questions for CLAT Exam

CLAT Maths Quiz 14

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

1. P can finish a work in 25 days and Q can do the same work in 20 days. Q worked for 8 days and left the job. In how many days, P alone can finish the remaining work?

A. 5 days

B. 10 days

C. 15 days

D. 17 days

2. A 10% hike in the price of pulses forces a person to purchase 2kg less for Rs 110 . Find the new and the original prices of the pulses.

A. Rs 2 per kg

B. Rs 5 per kg

C. Rs 7 per kg

D. Rs 10 per kg

3. Mr. Keisham gave 40% of the money he had, to his wife. He also gave 20% of the remaining amount to each of his three sons, Half of the amount now left was spent on miscellaneous item and the remaining amount of Rs. 12,000 was deposited in the bank. How much money did Mr. Keisham have initially ?

A. 1,000

B. 10,000

C. 1,00,000

D. 10,00,000

4. The length of the chord of a circle is 8 cm and perpendicular distance between centre and the chord is 3 cm. Then the radius of the circle is equal to:

A. 4 cm

B. 5 cm

C. 6 cm

D. 8 cm

5. Find the greatest possible length which can be used to measure exactly the lengths 4m 95cm, 9m and 16m 65cm.

A. 15 cm

B. 35 cm

C. 45 cm

D. 54 cm

6. A cone and a sphere have equal radii and equal volumes. Find the ratio of the diameter of the sphere to the height of the cone.

A. 1 : 2

B. 1 : 3

C. 2 : 3

D. None of these

7. At an instant, the length of the shadow of a pole is square root of 3 times the height of the pole. Find the angle of elevation of the turn.

A. 30°

B. 45°

C. 60°

D. 75°

8. Two light rods AB = a + b, CD = a – b symmetrically lying on a horizontal AB. There are kept intact by two strings AC and BD. The perpendicular distance between rods in a. The length of AC is given by

A. a

B. b

C. $\sqrt{a^2 - b^2}$

D. $\sqrt{a^2 + b^2}$

9. Find the least number of complete year in which a sum of money put out at 30% CI, will be more than double.

A. 3 yr

B. 4 yr

C. 5 yr

D. 8 yr

10. If x = 2 then the value of $x^3 + 27x^2 + 243x + 631$ is:

A. 1211

B. 1231

C. 1233

D. 1321

Correct answers:

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

Explanations:

1. Q's 8 days work = $\left[\frac{1}{20} \times 8\right] \Rightarrow \frac{2}{5}$

Remaining work = $\left[1 - \frac{2}{5}\right] \Rightarrow \frac{3}{5}$.

Now, $\frac{1}{25}$ work is done by P in 1 day.

$\therefore$ $\frac{3}{5}$ work is done by P in $\left[25 \times \frac{3}{5}\right] \Rightarrow 15$ days.

Hence, option C is correct.

2. To solve this question, we can apply a short trick approach

Original price = $\left(\frac{Ax}{(100 + x)n}\right)$ per kg

Where,

'**x**' is the percentage of hike in the price of an article = 10%

'**n**' is the decreased weight after the hike of price = 2 kg

'**A**' is the price of decreased weight = Rs 110

The original price of rice = $\frac{110 \times 10}{(100 + 10)2} = \frac{1100}{220}$

$= \frac{110}{22}$ = Rs. 5 per kg

Hence, option B is correct.

3. Let the initial amount with Mr. Keisham be Rs. x.

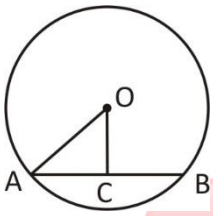
Then, $\frac{1}{2}[100 - (3 \times 20)]\%$ of $(100 - 40)\%$ of $x = 12000$.

$\Rightarrow \frac{1}{2} \times \frac{40}{100} \times \frac{60}{100} \times x = 12000 \Leftrightarrow \frac{3}{25}x = 12000.$

$\Rightarrow x = \left(\frac{12000 \times 25}{3}\right) = 100000.$

Hence, option (C) is correct.

4.



Chord, AB = 8 cm

Then, AC = CB = 4 cm

Perpendicular distance between centre and chord, OC = 3 cm

$\therefore$ OA = $\sqrt{OC^2 + AC^2}$

= $\sqrt{3^2 + 4^2} = \sqrt{25} = 5$ cm

Hence, option B is correct.

5. Required length = H.C.F. of 495 cm, 900 cm, and 1665 cm.

$495 = 3^2 \times 5 \times 11$, $900 = 2^2 \times 3^2 \times 5^2$, $1665 = 3^2 \times 5 \times 37$.

$\therefore$ H.C.F. = $3^2 \times 5 = 45$.

Hence, required length = 45cm.

Hence, option C is correct.

6. Let radius of each be R and height of the cone be H.

Then, $\frac{4}{3}\pi R^3 = \frac{1}{3}\pi R^2 H$ **or** $\frac{R}{H} = \frac{1}{4}$ **or** $\frac{2R}{H} = \frac{2}{4} = \frac{1}{2}$.

∴ Required ratio = 1: 2.

Hence, option A is correct.

7.

Let $AB = x$

Then, $BC = \sqrt{3}x$

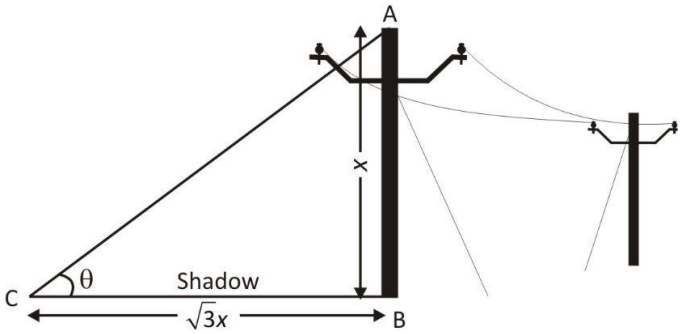
and $\theta = ?$

In ΔABC, $\tan\theta = \frac{x}{\sqrt{3}x}$

$\tan\theta = \frac{1}{\sqrt{3}}$

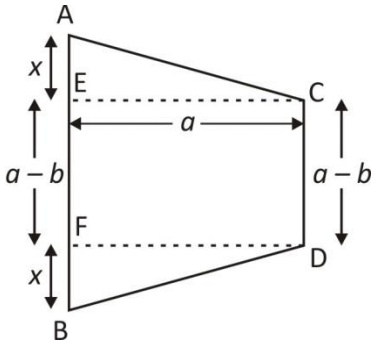
$\tan\theta = \tan 30°$ $\left[\because \tan 30° = \frac{1}{\sqrt{3}}\right]$

$\therefore \quad \theta = 30°$



Hence, option A is correct.

8. Since, they are symmetrically on horizontal plane.



∴ AC = BD

∴ AE = BF = x

Now, AB = (a – b) + 2x

i.e. $a + b = a - b + 2x \Rightarrow 2b = 2x \Rightarrow b = x$

Now in ΔACE,

$x^2 + a^2 = AC^2$

$AC^2 = b^2 + a^2 \Rightarrow AC = \sqrt{b^2 + a^2}$

Hence, option D is correct.

9. A sum will get double of itself at an overall interest rate of 100%

Let's apply the net% effect formula to get to know how many years would it take for interest to go beyond 100%

Net% effect for 1st 2 yrs = $30 + 30 + \frac{30 \times 30}{100} = 69\%$

Again, for next 1 yr = $69 + 30 + \frac{69 \times 30}{100} = 119.7\%$

Here, we can see that in 3 yrs the given compound rate of interest is occuring to more than 100%.

Therefore, 3 yrs is the correct answer.
Hence, option A is correct.

10. Given equation,

$f(x) = x^3 + 27x^2 + 243x + 631$

$\Rightarrow x(x^2 + 27x + 243) + 631$

Now, put the value of x = 2

$\Rightarrow 2(2^2 + 27 \times 2 + 243) + 631$

$\Rightarrow 2 (4 + 54 + 243) + 631$

$\Rightarrow 2(301) + 631 = 602 + 631 = 1233.$

Hence, option C is correct.