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The Question Bank

Mixed Quant for CGL Tier 1, SSC 10+2, CGL Tier 2 Exams.

SSC Maths Quiz 12

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

1. The cost price of a petrol and a Diesel together is ₹ 630. If the Petrol costs 10% more than the Diesel, then find the cost price of the petrol and Diesel respectively.

A. Rs. 390 and Rs. 300   B. Rs. 330 and Rs. 300   C. Rs. 200 and Rs. 230   D. Rs. 400 and Rs. 600

2. Nine equal cubes each of side 6 cm are joined end-to-end. Find the surface area of the resulting cuboid.

A. 798 sq cm   B. 486 sq cm   C. 2368 sq cm   D. 1368 sq cm

3. A man, a woman or a boy can do a job in 30 days, 60 days and 90 days respectively. How many boys must work with five men and four women to finish the same work in three days?

A. 3   B. 6   C. 9   D. 12

4. If $n + \frac{2}{3}n + \frac{1}{2}n + \frac{1}{5}n = 71$, then the value of n is -

A. 36   B. 30   C. 44   D. 46

5. Priya and Shina decide to go on a trip to Point Y on a particular day from Point X. Priya leaves for Point Y at 12:00 am at a speed of 36 km/hr. Shina leaves for Point Y at 12 : 30 the same day as Priya left. At what speed should Shina travel to catch up with Priya in 3 hours? (in km/hr)

A. 45   B. 41   C. 40   D. 42

6. If $\sec \alpha = \frac{5}{4}$, then $\frac{\tan \alpha}{1 + \tan^2 a}$ is equal to

A. $\frac{9}{25}$ B. $\frac{12}{25}$ C. $\frac{3}{4}$ D. $\frac{1}{25}$

7. A person invested an amount of Rs. 30000 at the simple rate of 5% interest pa and another amount at the simple rate of 8% interest pa. The total interest earned at the end of one year is equal to 6% pa. What is the total amount invested?

A. Rs. 45000   B. Rs. 50000   C. Rs. 60000   D. Rs. 65000

8. If x runs are scored by A, y runs by B and z runs by C, then x : y = y : z = 3 : 2. If total number of runs scored by A, B and C is 342, the runs scored by each would be respectively ?

A. 144, 96, 64   B. 162, 108, 72   C. 180, 120, 80   D. 189, 126, 84

9. The ratio of the length of the parallel sides of a trapezium is 4 : 3. The shortest distance between them is 15 cm. If the area of the trapezium is 420 sq cm, find the sum of the lengths of the parallel sides.

A. 56 cm   B. 36 cm   C. 42 cm   D. 60 cm

10. If the product of two successive positive odd integers is 7055, which is the greater integer?

A. 89   B. 75   C. 84   D. 85

Correct Answers:

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

Explanations :

1. Let the price of Diesel be 100. then

Price of Petrol will be 110% of 100 = 110

Therefore, according to question,
100 + 110 = 210 ≡ 630/-
∴ 1 ≡ 3/-
∴ 100 ≡ Rs. 300 & 110 ≡ Rs. 330.

Hence, Option B is correct.

2. Given, l = length of the cuboid = 6 × 9 = 54 cm

b = Breadth of the cuboid = 6 cm

h = Height of the cuboid = 6 cm

∴ Surface area = 2 (lb + bh + lh)

= 2 [54 × 6 + 6 × 6 + 54 × 6] = 2 [324 + 36 + 324] = 2 × 684 = 1368 sq cm

Hence, Option D is correct.

3. **Approach I:**

Let the number of boys required be x.

Work done by five men in three days = $\dfrac{5 \times 3}{30} = \dfrac{1}{2}$

Work done by four women in three days = $\dfrac{4 \times 3}{60} = \dfrac{1}{5}$

Work done by x boys in three days = $\dfrac{x \times 3}{90} = \dfrac{x}{30}$

∵ $\dfrac{1}{2} + \dfrac{1}{5} + \dfrac{x}{30} = 1$ ∵ $\dfrac{15 + 6 + x}{30} = 1$

∴ 21 + x = 30

∴ x = 30 − 21 = 9

Approach II:

Let the required no. of boys is x

Applying the short-cut approach,

$$\frac{(MD) \text{ in comb}}{(MD) \text{ alone}} + \frac{(WD) \text{ in comb}}{(WD) \text{ alone}} + \frac{(BD) \text{ in comb}}{(BD) \text{ alone}} = 1$$

Where, M, W and B in the numerators are the no. of men, women and boys working in combination with one another.

and M, W and B in the denominator the no. of men, women and boys working alone to a piece of work.

Similarly, 'D' in the numerators is the no. of days for which the men women given and boys work together.

and 'D' in denominator is the no. of days taken by the given men, women and boys to do a piece of work while working alone.

Putting the values in eqn., we get

$$\frac{5 \times 3}{30 \times 1} + \frac{4 \times 3}{60 \times 1} + \frac{x \times 3}{90} = 1$$

$$\Rightarrow \frac{1}{2} + \frac{1}{5} + \frac{x}{30} = 1$$

$$\Rightarrow \frac{x}{30} = \frac{3}{10} \Rightarrow x = 9$$

Hence, Option C is correct.

4.

$$n + \frac{2}{3}n + \frac{1}{2}n + \frac{1}{5}n = 71$$

$$\text{or, } n\left(\frac{30 + 20 + 15 + 6}{30}\right) = 71$$

$$\Rightarrow n = \frac{71 \times 30}{71} = 30$$

Hence, Option B is correct.

5. During the period 12:00 am to 12:30 am,

distance covered by Priya = $36 \times \dfrac{1}{2}$ = 18 km

(∵ Speed of Priya is 36 kmph) Then in 3 hours Shina requires to increase the speed to catchup Priya by

= $\dfrac{18}{3}$ = 6 kmph

∴ Shina's speed = 36 + 6 = 42 kmph.

Hence, Option D is correct.

6. $\sec \alpha = \dfrac{5}{4}$

∴ $\tan \alpha = \sqrt{\sec^2 \alpha - 1}$

= $\sqrt{\dfrac{25}{16} - 1}$ = $\sqrt{\dfrac{25 - 16}{16}}$ = $\sqrt{\dfrac{9}{16}}$ = $\dfrac{3}{4}$

Now, $\dfrac{\tan \alpha}{1 + \tan^2 \alpha}$ = $\dfrac{3/4}{1 + 3/4^2}$ = $\dfrac{3/4}{1 + 9/16}$

= $\dfrac{3/4}{25/16}$ = $\dfrac{12}{25}$

Hence, Option B is correct.

7. Let the second amount deposited be x.

∴ $30000 \times \dfrac{5}{100} + \dfrac{x \times 8}{100} = (30000 + x) \times \dfrac{6}{100}$

or, $1500 + \dfrac{8x}{100} = 1800 + \dfrac{6x}{100}$

or, $\dfrac{8x}{100} - \dfrac{6x}{100} = 300$

$\dfrac{2x}{100} = 300$ ∴ x = 15000

∴ Total = 30000 + 15000 = Rs. 45000

Hence, Option A is correct.

8. x : y = 3 : 2

y : z = 3 : 2

∴ x : y : z = 9 : 6 : 4

∴ Runs scored by A = x = $\frac{9}{19}$ × 342 = 162

Similarly,

Runs scored by B = y = $\frac{6}{19}$ × 342 = 108

And runs scored by C = x = $\frac{4}{19}$ × 342 = 72

[**Hint:** The moment we get runs scored by A, we can mark 'B' as the correct answer because no other option has 162 for A.]

Hence, Option B is correct.

9. Let the lengths of parallel sides are 4x and 3x.

As we know,

Area of trapezium
= $\frac{1}{2}$ (Sum of parallel sides) × Distance between them

∴ $\frac{1}{2}$ (4x + 3x)15 = 420

⇒ 105x = 840

∴ x = $\frac{840}{105}$ = 8 cm

∴ Sum of the parallel sides = (4x + 3x) = 7x = 7 × 8 = 56 cm

Hence, Option A is correct.

10. **Traditional Approach :**

Let the first odd integer be x.

∴ Greater integer = x + 2

According to the question,

or, x(x + 2) = 7055

or, $x^2 + 2x - 7055 = 0$

or, x(x + 85) − 83(x + 85) = 0

or, (x − 83) (x + 85) = 0

∴   x = 83

∴   The greater integer = x + 2 = 83 + 2 = 85.

Intuitive Approach :

We can eliminate the 'A' option straightway because if we assume it to be correct answer the two number must be 89 (the larger number) and 87 (the smaller one). But when we multiply these two we can observe that the unit digit of the product, we get is 3 instead of 5.

Similarly option 'C' can also be eliminated.

We can eliminate the option 'B' as well because product of 75 and 73 will give us a value near 75^2 = 5625 while the actual product is 7055.

Hence, the correct answer is option D which is 85.

Hence, Option D is correct.