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Mixed Quant for SSC Exams.

SSC Maths Quiz 15

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

B. 12560

B. 8 days

1. The population of a town is 31250. If the population increases by 20% in one year, but decreases in second year by 20% and the process goes like this for 6 years. Find the number of women after 6 years if the ratio of women, child and men after 6 years is 5 : 3 : 1.

C. 13630

C. $\frac{32}{7}$ days

D. $\frac{128}{7}$ days

A. 15360

- D. 16930
- 2. The ratio of efficiency of P is to R is 7 : 4 and the ratio of number of days taken by Q is to R is 2 : 3 while working alone P takes 9 days less than R to complete the work. If Q and R started the work and left after 2 days then find the number of days taken by P to finish the remaining work?
- A. $\frac{64}{7}$ days
- Two trains are moving in the opposite direction and their speeds are in the ratio of 2 : 3. 1. If the first train crosses a standing man in 5 sec and another train crosses the same man in 8 sec, then determine the time taken by trains to cross each other.

A. 6 sec B. 3 sec C. 5 sec D. 9 sec

4. A solid hemisphere is attached to the base of the right circular cone of diameter 20 cm and height 10 cm if this object is to be inscribed in a right circular cylinder then find the vacant space left in the cylinder?

C. 100 π cm³ A. 500 π cm³ B. 2000 π cm³ D. $1000 \,\pi \,\mathrm{cm}^3$

5. The radii of two concentric circles are 12 cm and 6 cm. AB is the diameter of the bigger circle and BD is a tangent to the smaller circle touching it at D and the bigger circle at E in such a way that it forms an angle of 90 degree at E with A. Point A is joined to D. The length of AD is –

A. 8 cm B. 3√3 cm C. 6√7 cm D. 12 cm

6. Two poles of equal height are standing opposite to each other on either side of a road which is 200 m wide. From a point between them on road, angle of elevation of their top are 30° and 60°. The height of each pole (in meters)

A. 50√3 meters	B. 45√3 meters	C. 40V3 meters	D. 25√3 meters
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- 7. The ratio of sides of two regular polygons is 1 : 2 and the ratio of their internal angles is 4 : 5. The number of sides of the polygons are:
- A. 3, 6 B. 4, 8 C. 6, 18 D. 6, 12

8. Cost price and marked price of an article are in the ratio of 2 : 3 while selling price and marked price are in the ratio of 3 : 4. If the profit attained on the article was Rs. 65 then find the discount percent?

A. 40% B. 25% C. 10% D. 20%

9. The average marks scored by Rakesh in 6 out of seven subjects in an examination is 76. To get an average of 70 in seven subjects together, what is the score that Rakesh must get in seventh subject?

A. 54 B. 84 C. 24 D. 34

10. A milkman has 35 litres of milk in one container and 105 litres of milk in another container. Find the maximum capacity of container in cm³ which can measure milk of either containers in whole number.



Correct Answers:

1	2	3	4	5	6	7	8	9	10
A	А	А	D	С	A	D	В	D	С



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Explanations :

1. The total change factor of population of 6 years is given as $\frac{6}{5} \times \frac{4}{5} \times \frac{6}{5} \times \frac{4}{5} \times \frac{6}{5} \times \frac{4}{5}$ $\Rightarrow \frac{13824}{15625}$ The new population = $\frac{13824}{15625} \times 31250 = 27648$ Population of women after 6 years = $\frac{5}{9} \times 27648 = 15360$

Hence, Option A is correct.

2. Here the ratio of efficiencies of P and R is 7 : 4.

So, the number of days taken by P and R be 4x and 7x.

And we know that P takes 9 days less than R to complete the work.

 $\Rightarrow 7x - 4x = 9$ $\Rightarrow 3x = 9$ $\therefore x = 3 \text{ days}$

So, time taken by P and R to complete the work is 12 days and 21 days respectively.

We have the ratio of the no. of days taken by Q and R to complete the work = 2:3

Now, time taken by Q to complete the work = $\frac{2}{3} \times 21 = 14$ days

Now, work done by Q and R together in 1 day

 $\left(\frac{1}{14} + \frac{1}{21}\right) = \frac{3+2}{42} = \frac{5}{42}$

So, work done by Q and R in 2 days = $2 \times \frac{5}{42} = \frac{5}{21}$

Remaining work = $1 - \frac{5}{21} = \frac{16}{21}$

Time taken by P to complete 16/21 of the work = $12 \times \frac{16}{21} = 64/7$ days

Thus, P will take 64/7 days to complete the remaining work.

Hence, Option A is correct.

3. Let the speeds be 2x and x with the lengths I_1 and I_2 respectively.

We have $I_1 = 2x \times 5 = 10x$ $I_2 = x \times 8 = 8x$

Now, let the time taken by them to cross each other be t

Therefore,
$$2x + x = \frac{10x + 8x}{t}$$

$$\Rightarrow 3x = \frac{18x}{t}$$

Hence, Option A is correct.

4. Using the information given we can create a following figure



We have, Height of cone = 10 cm Radius of cone = $\frac{20}{2}$ cm = 10 cm

So, Radius of Cylinder = 10 m

Radius of hemisphere = 10 cm and, Total height of cylinder = 10 + 10 = 20 cm

Now, Volume of object = Volume of hemisphere + volume of cone

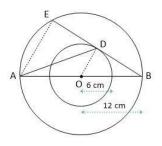
$$= \frac{2}{3}\pi \times (10)^3 + \frac{1}{3}\pi \times (10)^2 \times 10$$
$$= \frac{2}{3}\pi \times 1000 + \frac{1}{3}\pi \times 1000 = 1000 \,\pi \,\mathrm{cm}^3$$

Volume of cylinder = $\pi \times (10)^2 \times (20) = 200\pi \text{ cm}^3$

Vacant space left in the cylinder = $(2000\pi - 1000\pi)$ cm³ = 1000π cm³

Hence, option D is correct.





Given OB = 12 cm and OD = 6 cm

clearly, ∠ODB = 90° and

 $\mathsf{BE} = \frac{1}{2}\,\mathsf{DB} = \frac{1}{2}\,\mathsf{DE},$

AB = 24 cm.

From ΔODB,

So, DB2 =
$$OB^2 - OD^2 = 12^2 - 6^2 = 108$$

 \Rightarrow DB = $6\sqrt{3}$ cm
Then, BE = $12\sqrt{3}$ cm

Again, from $\triangle AEB$

As, $\angle AEB = 90^{\circ}$

 $AB^2 = AE^2 + BE^2$

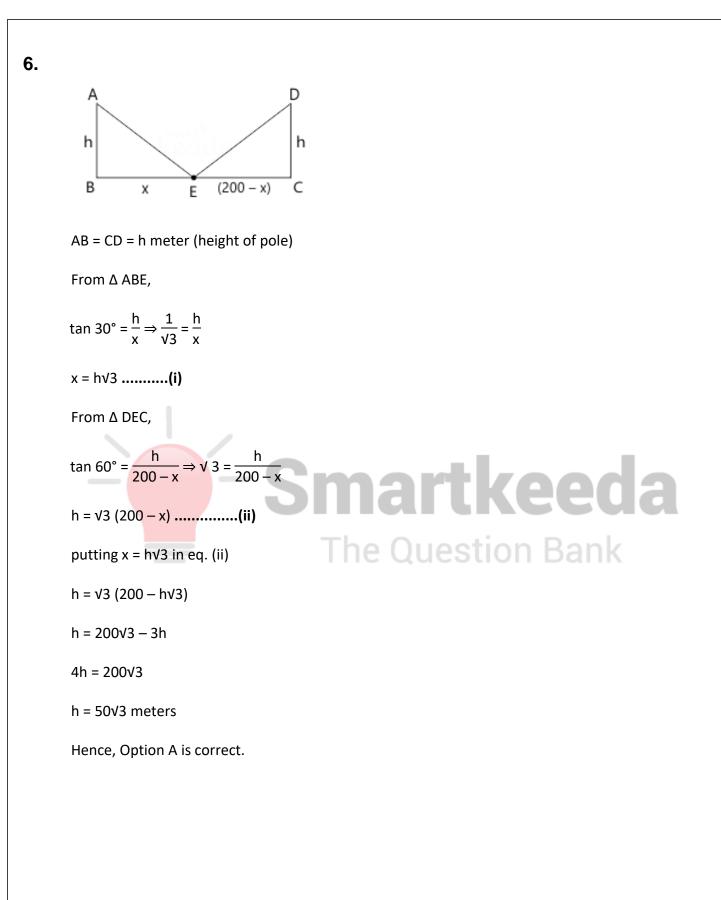
 $\Rightarrow AE^2 = AB^2 - BE^2$

And, from $\triangle AED$,

 AD^2

= $AE^2 + DE^2 = AB^2 - BE^2 + DE^2 = 24^2 - (12\sqrt{3})^2 + 108$ [Since DE = BD] = 576 - 432 + 108 = 252 ∴ The length of AD = 252 = 6√7 cm.

Hence, Option (C) is correct.





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7.

Internal angle of a regular polygon = $\frac{(n-2) \times 180}{n}$

It's given that the sides of the two polygons are in the ratio 1 : 2 and the ratio of the internal angles are 4 : 5.

Hence, $\frac{(n-2) \times 180}{\frac{n}{(2n-2) \times 180}} = \frac{4}{5}$	
$\Rightarrow \frac{2n-4}{2n-2} = \frac{4}{5}$	
\Rightarrow 10n - 20 = 8n - 8	
$2n = 12 \implies n = 6$	
They are in the ratio 1 : 2	
1 represents 6	
So, 2 represents 12	
So, sides are (6, 12)	Smartkeeda
Hence, Opt <mark>ion D is</mark> correct.	The Question Depk
	The Question Bank

8. Here, ratio of cost price and market price = 2 : 3 and, ratio of selling price and marked price = 3 : 4

Thus, ratio of cost price : selling price : marked price = 8 : 9 : 12

So, the cost price = 8x

Selling price = 9x Marked price = 12x

We know that the profit attained after the article is Rs. 65 \Rightarrow 9x - 8x = 65 \therefore x = Rs. 65

⇒ Cost price = Rs. 520 ⇒ Selling price = Rs. 585 ⇒ Marked price = Rs. 780

Now, Discount % = $\frac{780 - 585}{780} \times 100 = 25\%$

Here, Percent discount offered was 25% Hence, Option B is correct.

- 9. Total marks of 6 subjects at an average of 76 marks per subject = 6 × 76 = 456 Total marks of 7 subjects at an average of 70 marks per subject = $7 \times 70 = 490$ Therefore, marks in seventh subject = 490 - 456 = 34Hence, Option D is correct.
- 10. In such questions, we have to find HCF

HCF of 35 and 105 is 35.

Therefor the maximum capacity of container = 35 litres

We know that 1000 $\text{cm}^3 = 1$ litre

Therefore,

 $35 \text{ litres} = 1000 \times 35 \text{ cm}^3 = 35000 \text{ cm}^3$

Hence, Option C is correct. Smartkeeda **The Question Bank**



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