SECTION A : 20 QUESTIONS (+4, 0)

In this section, only one option is correct and correct answer will fetch +4 marks, NO answer or wrong answer will fetch zero marks.
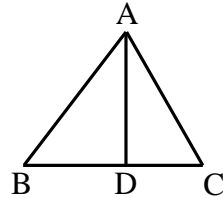
1. The sum of three prime numbers is 100. One of them exceeds the other by 36.
   Find the largest number?
   (A) 73   (B) 91   (C) 67   (D) 57

2. What must be subtracted from $4x^4 - 2x^3 - 6x^2 + x - 5$ so that the result is exactly divisible by $2x^2 + x - 2$?
   (A) $-3x - 5$ (B) $3x - 5$ (C) $-3x + 5$ (D) $3x - 5$

3. A plane left 30 minutes later than the scheduled time and in order to arrive its destination (1500 km away) in time, it has to increase its speed by 250 km/h from its usual speed. Find its usual speed
   (A) 600 km/h   (B) 750 km/h   (C) 900 km/h   (D) None of these

4. The value of $\sqrt{6 + \sqrt{6 + \sqrt{6 + ...}}}$ is
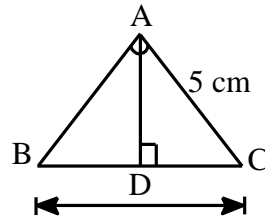   (A) 4   (B) 3   (C) –2   (D) 3.5

5. In $\triangle ABC, \dfrac{AB}{AC} = \dfrac{BD}{DC}, \angle B = 70^0$ and $\angle C = 50^0$. Then $\angle BAD = ?$
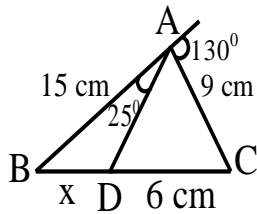

   (A) 30º   (B) 40º   (C) 50º   (D) 45º

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6. ΔABC is right angled at A and $AD \perp BC$. If $BC = 13cm$ and $AC = 5cm$, the ratio of the areas of ΔABC and ΔADC is

(A) $25 : 169$ (B) $169 : 25$ (C) $5 : 13$ (D) $13 : 5$

7. In the given figure, value of x is

(A) 8 cm   (B) 4 cm   (C) 10 cm   (D) None of these

8. One side of a parallelogram is 12 cm and its area is $60\,cm^2$. If the angle between the adjacent side is 30°, then its other side is

(A) 8 cm   (B) 6 cm   (C) 10 cm   (D) 4 cm

9. If α, β are the roots of the equation $ax^2 + bx + c = 0$ then the quadratic equation whose roots are $\alpha + \beta, \alpha\beta$ is

(A) $a^2x^2 + a(b-c)x - bc = 0$ (B) $a^2x^2 + a(b-c)x + bc = 0$

(C) $ax^2 + (b+c)x + bc = 0$ (D) $ax^2 + (b+c)x - bc = 0$

10. If $25^{x-1} = 5^{2x-1} - 100$, then the value of x is

(A) 3   (B) 2   (C) 4   (D) 1
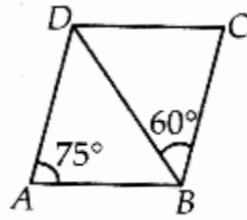
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11. Simplify: $\left(\dfrac{81}{16}\right)^{-\frac{3}{4}} \times \left[\left(\dfrac{25}{9}\right)^{-\frac{3}{2}} \div \left(\dfrac{5}{2}\right)^{-3}\right]$

(A) 1   (B) 2   (C) 3   (D) 4

12. An angle is 20° more than one third of its supplementary angle, then the angles are:
(A) 20°, 160°   (B) 40°, 140°   (C) 60°, 120°   (D) 70°, 110°

13. If $2^x \times 4^x = (8)^{\frac{1}{3}} \times (32)^{\frac{1}{5}}$, find the value of x.

(A) $\dfrac{4}{1}$ (B) $\dfrac{1}{2}$ (C) $\dfrac{3}{4}$ (D) $\dfrac{2}{3}$

14. The equation $\sqrt{x+1} - \sqrt{x-1} = \sqrt{4x-1}$ has
(A) No solution   (B) One solution
(C) Two solutions   (D) More than two solutions

15. $\triangle ABC$ has integral sides, such that AB, BC measuring 2001 units and 1002 units. The number of such triangles is _____.
(A) 2001   (B) 2002   (C) 2003   (D) 2004

16. If the L. C. M. between (a, b) = 24; (b, c) = 60 and (c, a) = 40, what is the L. C. M. between a, b and c?
(A) 60   (B) 120   (C) 240   (D) 300

17. If $AB \| CD$, what is the value of x ?
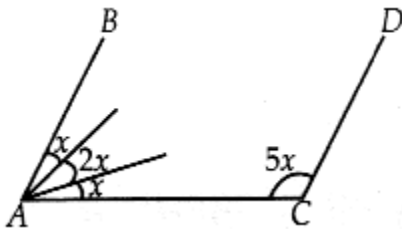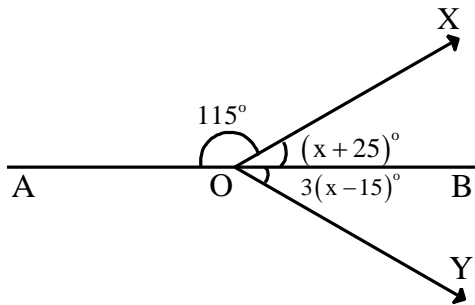

(A) 18°   (B) 15°   (C) 20°   (D) 25°

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18. In the given figure, *ABCD* is a parallelogram, then $\angle DBA$ and $\angle BDA$ are respectively equal to

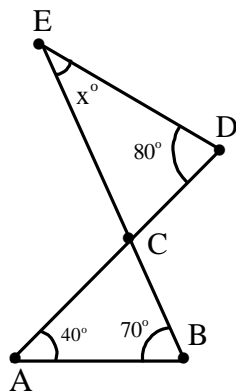(A) 45°, 60° (B) 60°, 45° (C) 70°, 35° (D) 35°, 70°

19. Consider the figure below

The measure of $\angle AOY$ is

(A) 115° (B) 100° (C) 105° (D) 120°

20. Consider the following figure:

The value of xº is

(A) 50º (B) 30º (C) 40º (D) none of these

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