

- I. Four alternatives are given for each of the following questions / incomplete statements. Only one of them is correct or most appropriate. Choose the correct alternative and write the complete answer along with its letter of alphabet.

$$8 \times 1 = 8$$

1. If A and B are two non-empty subsets of a universal set, then De-Morgan's law is given by
- (A) $(A \cup B)' = A' \cup B'$
- (B) $(A \cup B)' = A' \cap B'$
- (C) $(A \cap B)' = A' \cap B'$
- (D) $(A \cup B)' = (A \cap B)'$
2. The value of ${}^n C_0 \times {}^n C_1$ is
- (A) 1
- (B) n
- (C) $n!$
- (D) 0
3. A fair die, the faces of which are numbered from 1 to 6 is rolled once. The probability of getting 4 on its top face is
- (A) $\frac{4}{6}$
- (B) $\frac{3}{6}$
- (C) $\frac{2}{6}$
- (D) $\frac{1}{6}$



4. If the mean of a collection of data is 13 and standard deviation is $5\cdot 2$ then the coefficient of variation of the same data is
- (A) 20
- (B) 30
- (C) 40
- (D) 50
5. A quadratic equation whose roots are $3 + 2\sqrt{5}$ and $3 - 2\sqrt{5}$ is
- (A) $x^2 - 6x - 11 = 0$
- (B) $x^2 + 6x - 11 = 0$
- (C) $x^2 + 6x + 11 = 0$
- (D) $x^2 - 11x + 6 = 0$
6. If $\tan A = \frac{3}{4}$ then $\sin A$ is
- (A) $\frac{3}{5}$
- (B) $\frac{4}{3}$
- (C) $\frac{4}{5}$
- (D) $\frac{5}{3}$



7. The distance between the origin and point (x, y) is

(A) $\sqrt{x^2 - y^2}$

(B) $\sqrt{(x + y)^2}$

(C) $\sqrt{(x - y)^2}$

(D) $\sqrt{x^2 + y^2}$

8. If P is the mid-point of the line joining $A(1, 4)$ and $B(3, 6)$ then the co-ordinates of P is

(A) $(4, 10)$

(B) $(2, 10)$

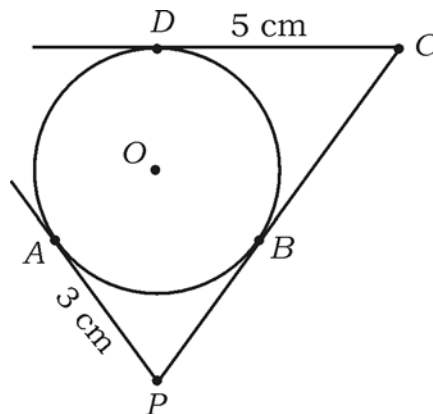
(C) $(2, 5)$

(D) $(4, 5)$

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1. If the n -th term of an arithmetic progression is $5n + 3$, then 3rd term of the arithmetic progression is
- (A) 11 (B) 18
(C) 12 (D) 13
2. In the following figure, PA , PC and CD are tangents drawn to a circle of centre O . If $AP = 3$ cm, $CD = 5$ cm, then the length of PC is



- (A) 3 cm (B) 5 cm
(C) 8 cm (D) 2 cm
3. If the lines drawn to the linear equations of the type $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are coincident on each other, then the correct relation among the following is

- (A) $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ (B) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$
(C) $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ (D) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} = \frac{c_1}{c_2}$



4. The distance between the origin and co-ordinates of a point (x, y) is

(A) $x^2 + y^2$ (B) $\sqrt{x^2 - y^2}$

(C) $x^2 - y^2$ (D) $\sqrt{x^2 + y^2}$

5. If the HCF of 72 and 120 is 24, then their LCM is

(A) 36 (B) 720

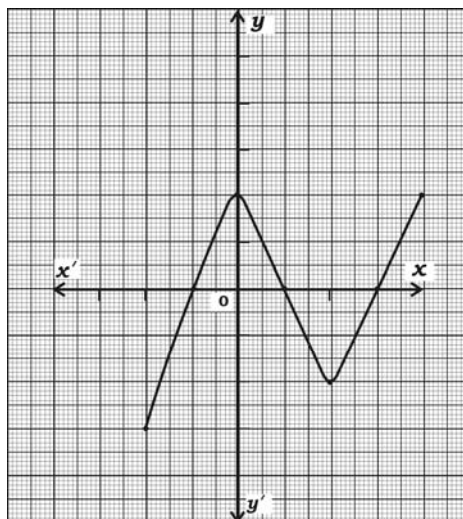
(C) 360 (D) 72

6. The value of $\sin 30^\circ + \cos 60^\circ$ is

(A) $\frac{1}{2}$ (B) $\frac{3}{2}$

(C) $\frac{1}{4}$ (D) 1

7. In the given graph of $y = P(x)$, the number of zeros is



(A) 4 (B) 3

(C) 2 (D) 7



8. Faces of a cubical die numbered from 1 to 6 is rolled once. The probability of getting an odd number on the top face is

(A) $\frac{3}{6}$

(B) $\frac{1}{6}$

(C) $\frac{2}{6}$

(D) $\frac{4}{6}$