



International Olympiad of Mathematics



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For supremacy in Mathematics
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CLASS : 11 SAMPLE QUESTIONS

The Actual Question Paper Contains 40 Questions. The Duration of the Test Paper is 50 Minutes.

- The set $(A \cup B \cup C) \cap (A \cap B' \cap C')' \cap C'$ is equal to _____.
 (A) $B \cap C'$ (B) $A \cap C$
 (C) $B' \cap C'$ (D) $B \cap C$
- The value of $\frac{\sec 8\theta - 1}{\sec 4\theta - 1}$ is equal to _____.
 (A) $\frac{\tan 8\theta}{\tan 2\theta}$ (B) $\frac{\tan 2\theta}{\tan 8\theta}$
 (C) $\frac{\tan 8\theta}{\tan 4\theta}$ (D) $\frac{\tan 4\theta}{\tan 8\theta}$
- Five students A, B, C, D and E are sitting in a row, D is on the right of E. B is on the left of E but is on the right of A. D is on the left of C. Who is sitting in the middle?
 (A) A
 (B) B
 (C) C
 (D) E
- If $f(x) = \sqrt{x}$ and $g(x) = 2x - 5$, then domain of $(f \circ g)(x)$ is _____.
 (A) $\left[\frac{-5}{2}, \infty\right)$ (B) $\left(0, \frac{5}{2}\right]$
 (C) $\left[\frac{5}{2}, \infty\right)$ (D) $(5, \infty)$
- Let two fair six-faced dice A and B be thrown simultaneously. If E_1 is the event that die A shows up four, E_2 is the event that die B shows up two and E_3 is the event that the sum of numbers on both dice is odd, then which one of the following statements is not true?
 (A) E_1, E_2 and E_3 are independent
 (B) E_1 and E_3 are independent
 (C) E_2 and E_3 are independent
 (D) E_1 and E_2 are independent
- Let S denotes the sum of the series $1 + \frac{8}{2!} + \frac{21}{3!} + \frac{40}{4!} + \frac{65}{5!} + \dots$, then _____.
 (A) $S < 8$
 (B) $S > 12$
 (C) $8 < S < 12$
 (D) $12 < S < 16$
- Sum of digits in the unit's place formed by the digits 1, 2, 3 and 4 taken all at a time is _____.
 (A) 90
 (B) 70
 (C) 60
 (D) 50

8. $\lim_{n \rightarrow \infty} n(\sqrt{n^2 + 4} - n)$ is equal to _____.

- (A) e
- (B) 1
- (C) 2
- (D) e^2

9. The negation of $p \rightarrow (\sim p \vee q)$ is _____.

- (A) $p \rightarrow q$
- (B) $p \wedge \sim q$
- (C) $p \vee \sim q$
- (D) $p \rightarrow \sim q$

10. Sanjeev walks 10 metres towards the South. Turning to the left, he walks 20 metres and then moves to his right. After moving a distance of 20 metres, he turns to the right and walks 20 metres. Finally, he turns to the right and moves a distance of 10 metres. How far and in which direction is he from the starting point?

- (A) 10 metres, North
- (B) 20 metres, South
- (C) 20 metres, North
- (D) 10 metres, South

**ANSWERS**

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