

International Maths Wizard Olympiad (IMWO)

CLASS-11 SAMPLE QUESTION PAPER

The Actual Question Paper Contains 50 Questions. The duration of the Test Paper is 60 Minutes.



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- $$\arg \left[\frac{1 + \cos \frac{\pi}{8} + i \sin \frac{\pi}{8}}{1 - \cos \frac{\pi}{8} + i \sin \frac{\pi}{8}} \right]$$

arg is equal to

(A) $\frac{3\pi}{4}$ (B) $-\frac{3\pi}{8}$
(C) $-\frac{3\pi}{4}$ (D) All of these
(E) None of these
- The value of x in the given equation $4^x - 3^{x-1/2} = 3^{x+1/2} - 22^{x-1}$ is

(A) $4/3$ (B) $3/2$
(C) $1/2$ (D) $5/3$
(E) None of these
- If the sum of two extreme numbers of an AP with four terms is 8 and product of remaining two middle terms is 15, then greatest number of the AP will be

(A) 5 (B) 7
(C) 9 (D) 11
(E) None of these
- If $A = \{(x, y) : y = e^{2x}, x \in \mathbb{R}\}$ and $B = \{(x, y) : y = e^{-2x}, x \in \mathbb{R}\}$, then

(A) $A \cap B = \phi$
(B) $A \cap B \neq \phi$
(C) $A \cap B$ is a singleton set
(D) All of these
(E) None of these
- If $\frac{x}{\cos \theta} = \frac{y}{\cos \left(\theta - \frac{2\pi}{3} \right)} = \frac{z}{\cos \left(\theta + \frac{2\pi}{3} \right)}$, then $x + y + z$ is equal to

(A) 1 (B) 0
(C) -1 (D) All of these
(E) None of these
- A man on the top of a cliff 100m high observes the angles of depression of two points on the opposite sides of the cliff as 30° and 60° respectively. Then, the distance between the two points is

(A) 400m
(B) $\frac{400}{\sqrt{3}}m$
(C) $400\sqrt{3}m$
(D) All of these
(E) None of these
- If equation $\sin^4 x = 1 + \tan^8 x$, then x is

(A) $\pi/4$ (B) $\pi/2$
(C) $\pi/6$ (D) Not possible
(E) None of these
- The coefficient of x^2 in the expansion of $(1 + x + x^2)^{10}$ is

(A) ${}^{10}C_2$ (B) ${}^{10}C_1$
(C) ${}^{11}C_2$ (D) All of these
(E) None of these
- Let $x = 33^n$. The index n is given a positive integral value at random. The probability that the value of x will have 3 in the units place, is

(A) $1/4$ (B) $1/2$
(C) $1/3$ (D) All of these
(E) None of these
- If the roots of the equation $x^3 - 12x^2 + 39x - 28 = 0$ are in A.P., then their common difference will be

(A) ± 1 (B) ± 2
(C) ± 3 (D) ± 4
(E) None of these