

## Trigonometric Functions - Class XI

### Related Questions with Solutions

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#### Questions

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##### Question: 01

General solution of  $2 \cos^2 x - 1 = \sin 3x$

- A.  $\frac{\pi(5n+1)}{10} (n \in Z)$   
B.  $\frac{\pi(4n+1)}{10} (n \in Z)$   
C.  $\frac{\pi(4n+1)}{5} (n \in Z)$   
D.  $\frac{\pi(5n+1)}{5} (n \in Z)$

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#### Solutions

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##### Solution: 01

$$\begin{aligned}\cos 2x &= \sin 3x = \cos\left(\frac{\pi}{2} - 3x\right) \\ \Rightarrow 2x &= 2n\pi \pm \left(\frac{\pi}{2} - 3x\right) \\ \Rightarrow 2x &= 2n\pi + \frac{\pi}{2} - 3x \quad \text{or} \quad 2x = 2n\pi - \frac{\pi}{2} + 3x \\ \Rightarrow x &= (4n+1)\frac{\pi}{10} \quad \text{or} \quad -x = (4n-1)\frac{\pi}{2} \\ \Rightarrow x &= (4n+1)\frac{\pi}{10} \quad \text{or} \quad x = (4k+1)\frac{\pi}{2} \\ \Rightarrow x &= (4n+1)\frac{\pi}{10}; \quad n \in Z\end{aligned}$$

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#### Correct Options

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Answer:01

Correct Options: B