

Mathematics

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(Chapter 2)(Inverse Trigonometric Functions)

(Class XII)

(Exemplar Problems)

Objective Type Questions

Choose the correct answers from the given four options in the following (MCQ):

Question 23:

The value of $\sin^{-1} \left[\cos \left(\frac{33\pi}{5} \right) \right]$ is

- (A) $\frac{3\pi}{5}$ (B) $-\frac{7\pi}{5}$ (C) $\frac{\pi}{10}$ (D) $-\frac{\pi}{10}$

Answer 23:

- (D) $-\frac{\pi}{10}$

Solution:

Given that: $\sin^{-1} \left[\cos \left(\frac{33\pi}{5} \right) \right]$

Now, we have $\sin^{-1} \left[\cos \left(\frac{33\pi}{5} \right) \right]$

$$\Rightarrow \sin^{-1} \left[\cos \left(6\pi + \frac{3\pi}{5} \right) \right]$$

$$\Rightarrow \sin^{-1} \left[\cos \frac{3\pi}{5} \right]$$

$$\Rightarrow \sin^{-1} \left[\cos \left(\frac{\pi}{2} + \frac{\pi}{10} \right) \right]$$

$$\Rightarrow \sin^{-1} \left(-\sin \frac{\pi}{10} \right)$$

$$\Rightarrow \sin^{-1} \left[\sin \left(-\frac{\pi}{10} \right) \right] = -\frac{\pi}{10}$$

So, $\sin^{-1} \left[\cos \left(\frac{33\pi}{5} \right) \right] = -\frac{\pi}{10}$

Hence, the option (D) is correct.

