

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 28:

The value of $\cos^{-1}\left(\cos\frac{3\pi}{2}\right)$ is

- (A) $\frac{\pi}{2}$ (B) $\frac{3\pi}{2}$ (C) $\frac{5\pi}{2}$ (D) $\frac{7\pi}{2}$

Answer 28:

- (A) $\frac{\pi}{2}$

Solution:

To find: $\cos^{-1}\left(\cos\frac{3\pi}{2}\right)$



Now, we have $\cos^{-1}\left(\cos\frac{3\pi}{2}\right)$

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

$$= \cos^{-1}\left(\cos\frac{\pi}{2}\right)$$

$$= \frac{\pi}{2}$$

$$[\because \cos^{-1}(\cos x) = x \text{ if } x \in [0, \pi]]$$

$$\Rightarrow \cos^{-1}\left(\cos\frac{3\pi}{2}\right) = \frac{\pi}{2}$$

Hence, the option (A) is correct.

