

# 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 26:

If  $\cos \left( \sin^{-1} \frac{2}{5} + \cos^{-1} x \right) = 0$ , then  $x$  is equal to

(A)  $\frac{1}{5}$

(B)  $\frac{2}{5}$

(C) 0

(D) 1

#### Answer 26:

(B)  $\frac{2}{5}$

#### Solution:

Given that:  $\cos \left( \sin^{-1} \frac{2}{5} + \cos^{-1} x \right) = 0$

Now, we have  $\cos \left( \sin^{-1} \frac{2}{5} + \cos^{-1} x \right) = 0$

$$\Rightarrow \sin^{-1} \frac{2}{5} + \cos^{-1} x = \cos^{-1} 0$$

$$\Rightarrow \sin^{-1} \frac{2}{5} + \cos^{-1} x = \frac{\pi}{2}$$

$$\Rightarrow \sin^{-1} \frac{2}{5} = \frac{\pi}{2} - \cos^{-1} x$$

$$\Rightarrow \sin^{-1} \frac{2}{5} = \sin^{-1} x$$

$$\left[ \because \sin^{-1} x + \cos^{-1} x = \frac{\pi}{2} \right]$$

$$\Rightarrow x = \frac{2}{5}$$

Hence, the option (B) is correct.

