

Mathematics

(www.tiwariacademy.in)

(Chapter 2)(Inverse Trigonometric Functions)

(Class XII)

(Exemplar Problems)

Objective Type Questions

Fill in the blank in the following:

Question 40:

If $\cos(\tan^{-1}x + \cot^{-1}\sqrt{3}) = 0$, then value of x is _____.

Answer 40:

Given that: $\cos(\tan^{-1}x + \cot^{-1}\sqrt{3}) = 0$

Now, we have

$$\cos(\tan^{-1}x + \cot^{-1}\sqrt{3}) = 0$$

$$\Rightarrow \tan^{-1}x + \cot^{-1}\sqrt{3} = \cos^{-1} 0$$

$$\Rightarrow \tan^{-1}x + \cot^{-1}\sqrt{3} = \frac{\pi}{2}$$

$$\Rightarrow \cot^{-1}\sqrt{3} = \frac{\pi}{2} - \tan^{-1}x$$

$$\Rightarrow \cot^{-1}\sqrt{3} = \cot^{-1}x$$

$$\Rightarrow \sqrt{3} = x$$



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

Hence, the principal value of x is $\sqrt{3}$.

