

Mathematics

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(Chapter 2)(Inverse Trigonometric Functions)

(Class XII)

(Exemplar Problems)

Objective Type Questions

Fill in the blank in the following:

Question 45:

The value of expression $\tan\left(\frac{\sin^{-1}x + \cos^{-1}x}{2}\right)$, when $x = \frac{\sqrt{3}}{2}$ is _____.

Answer 45:

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


Now, we have

$$\tan\left(\frac{\sin^{-1}x + \cos^{-1}x}{2}\right)$$

$$= \tan\left(\frac{\pi}{2}\right)$$

$$= \tan\left(\frac{\pi}{4}\right)$$

$$= 1$$

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


So, the value of expression $\tan\left(\frac{\sin^{-1}x + \cos^{-1}x}{2}\right)$ is 1.

