

CLASS 12

MATHEMATICS

REVISION NOTES

Class 12 Mathematics Chapter 2 Inverse Trigonometric Functions – Revision Notes

Inverse Trigonometric Functions restricts $\sin$, $\cos$, and $\tan$ to principal value branches so that each has a well-defined inverse, and this chapter lays out the key identities that follow from that restriction.

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Principal Value Branches

$$\sin^{-1}x: [-1, 1] \rightarrow [-\pi/2, \pi/2]. \quad \cos^{-1}x: [-1, 1] \rightarrow [0, \pi]. \quad \tan^{-1}x: \mathbb{R} \rightarrow (-\pi/2, \pi/2).$$

Key Identities

$$\sin^{-1}x + \cos^{-1}x = \pi/2; \quad \tan^{-1}x + \cot^{-1}x = \pi/2.$$

$$\sin^{-1}(-x) = -\sin^{-1}x; \quad \cos^{-1}(-x) = \pi - \cos^{-1}x.$$

Sum Formula

$$\tan^{-1}x + \tan^{-1}y = \tan^{-1}((x+y)/(1-xy)), \text{ valid for } xy < 1.$$

One-Line Summary

Inverse trigonometric functions are defined by restricting trig functions to specific principal value domains where they become one-to-one and invertible, governed by a set of identities relating them to one another.

Class 12 Mathematics Chapter 2 – Solutions and Important Questions

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