

Topic -
Evaluating Inverse Functions

EQ: How are the inverse of a trig function calculated?

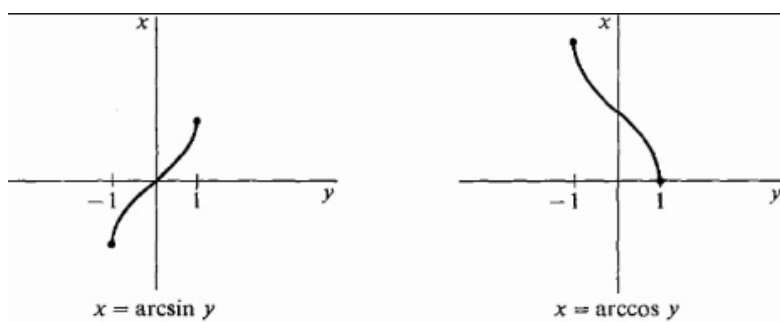
Inverse Functions -

- horizontal line test

- $y = \sin(x)$ (fails test)

Domain = $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ \leftarrow restricted to Q1 & Q4

$y = \sin^{-1} = \arcsin(x)$ \leftarrow notation



$$y = \sin^{-1}x = \arcsin$$

$$y = \cos^{-1}x = \arccos$$

Cancellation Laws -

$$\sin^{-1}(\sin x) = x; \text{ where } -\frac{\pi}{2} \leq \mathbf{y} \leq \frac{\pi}{2}$$

$$\sin(\sin^{-1}(x)) = x; \text{ where } -1 \leq x \leq 1$$

$$\cos^{-1}(\cos x) = x; \text{ where } 0 \leq \mathbf{y} \leq \pi$$

$$\cos(\cos^{-1}x) = x; \text{ where } -1 \leq x \leq 1$$

Let's Evaluate -