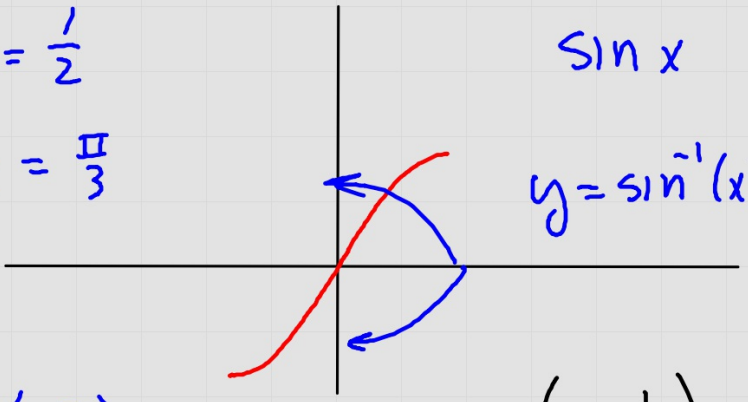
Inverse Trigonometric Functions

A Quick Review

$\sin \frac{\pi}{3} = \frac{1}{2}$

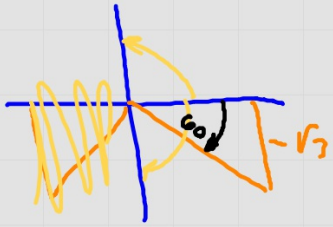
$\sin^{-1} \frac{1}{2} = \frac{\pi}{3}$



$\sin x \quad D: \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

$y = \sin^{-1}(x) \quad y \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

$\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right) = -\frac{\pi}{3}$

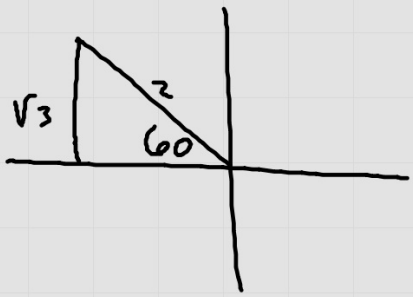


$\sin\left(\sin^{-1} x\right) = x \quad x \in [-1, 1]$

$\sin^{-1}(\sin x) = x \quad x \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

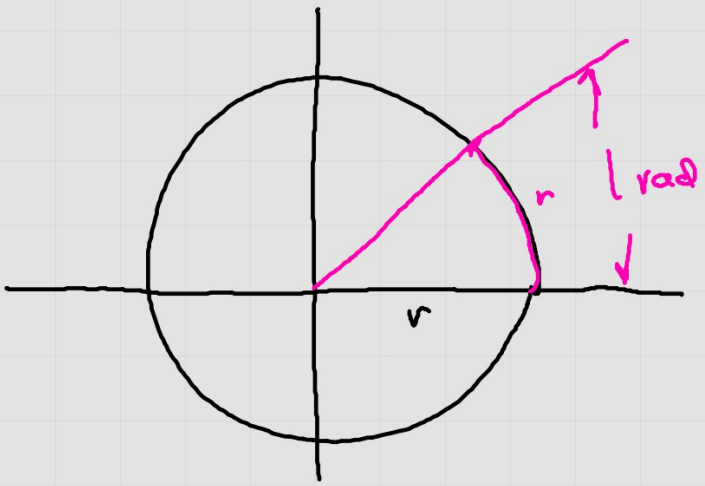
$$\sin^{-1}\left(\sin\frac{\pi}{13}\right) = \frac{\pi}{13}$$

$$\sin^{-1}\left(\sin\frac{2\pi}{3}\right) = \sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{3}.$$

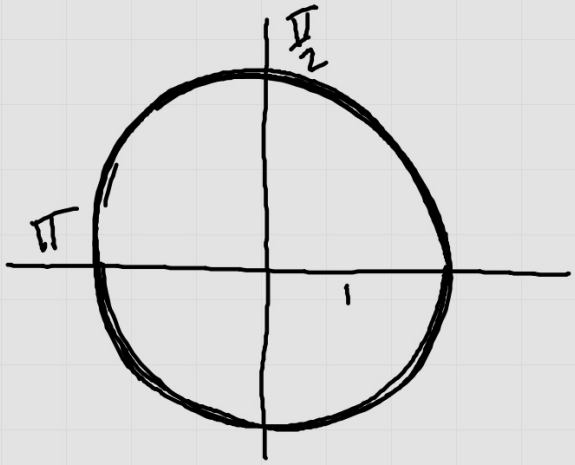


$\arcsin(x) = \sin^{-1}(x)$

$\sin^{-1}\frac{1}{2}$



$C = 2\pi r$



$\cos x \quad D: [0, \pi]$

$y = \cos^{-1} x \quad y \in [0, \pi]$

$\cos(\cos^{-1} x) = x \quad x \in [-1, 1]$

$\cos^{-1}(\cos x) = x \quad x \in [0, \pi]$

$\cos^{-1}\left(\cos \frac{2\pi}{3}\right) = \frac{2\pi}{3}$

$\cos^{-1}\left(\cos \frac{11\pi}{12}\right) = \frac{11\pi}{12}$

$\cos^{-1}\left(\cos \frac{13\pi}{12}\right)$

$\tan(x)$ $D: \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$

$y = \tan^{-1}(x)$ $y \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$

$\tan\left(\tan^{-1} x\right) = x \quad x \in (-\infty, \infty)$

$\tan^{-1}\left(\tan x\right) = x \quad x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$