

Inverse Trig Functions

$$\text{Ex. } \sin \frac{\pi}{6} = \boxed{\frac{1}{2}}$$

$$\text{Ex. } \sin^{-1} \left(\frac{1}{2} \right) = \boxed{\frac{\pi}{6}}$$

↖ angle

↑ "inverse sine"

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

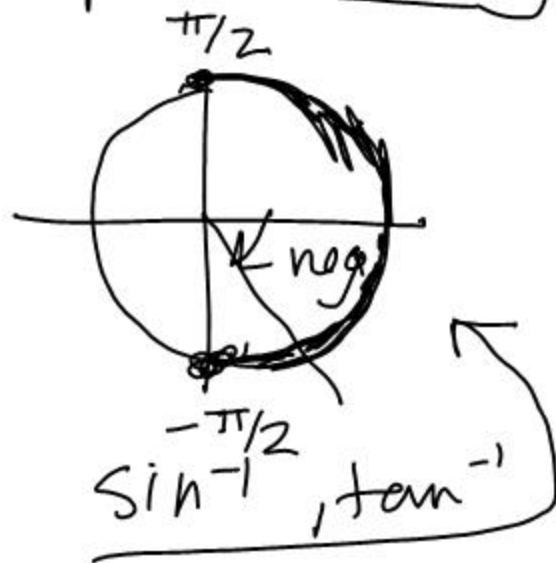
$$\text{Ex. } \tan^{-1} \left(\sqrt{3} \right) = \frac{\pi}{3}$$

For \sin^{-1} (pos), \cos^{-1} (pos.), or \tan^{-1} (pos),
give an angle in the 1st quadrant.

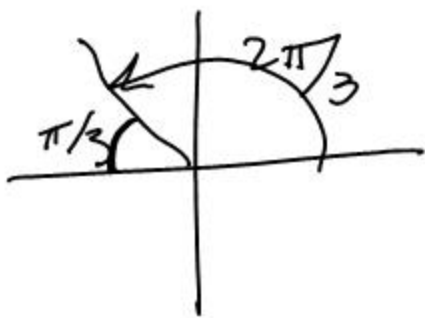
$$\text{Ex. } \sin^{-1} \left(-\frac{1}{2} \right) = -\frac{\pi}{6}$$

$$\text{Ex. } \sin^{-1} \left(-\frac{1}{\sqrt{2}} \right) = -\frac{\pi}{4}$$

$$\text{Ex. } \tan^{-1} \left(-\sqrt{3} \right) = -\frac{\pi}{3}$$



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



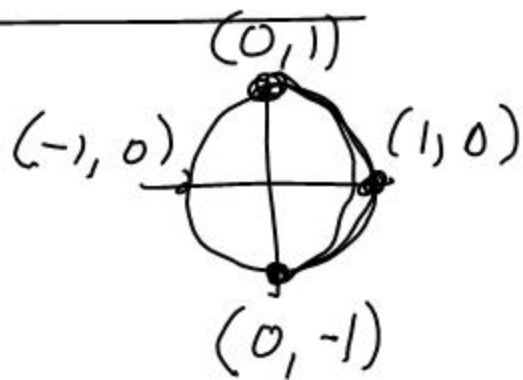
$$\text{Ex } \cos^{-1}\left(-\frac{\sqrt{2}}{2}\right) = \frac{3\pi}{4}$$



$$\sin^{-1}(-1) = -\pi/2$$

$$\sin^{-1}(0) = 0$$

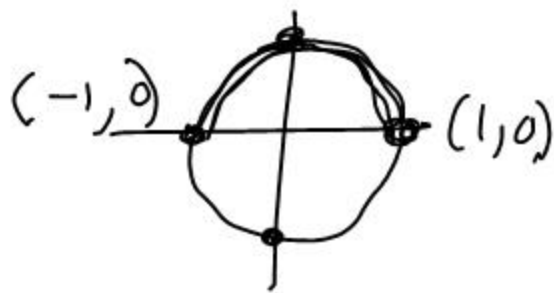
$$\sin^{-1}(1) = \frac{\pi}{2}$$



$$\cos^{-1}(-1) = \pi$$

$$\cos^{-1}(0) = \frac{\pi}{2}$$

$$\cos^{-1}(1) = 0$$



• Solve: $\cos \theta = -\frac{1}{2}$

$$0 \leq \theta < 2\pi$$

$$\theta = \frac{2\pi}{3}, \frac{4\pi}{3}$$

• Evaluate:

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



• Solve: $\sin \theta = -\frac{\sqrt{3}}{2}$

$$\theta = \frac{4\pi}{3}, \frac{5\pi}{3}$$

• Evaluate:

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