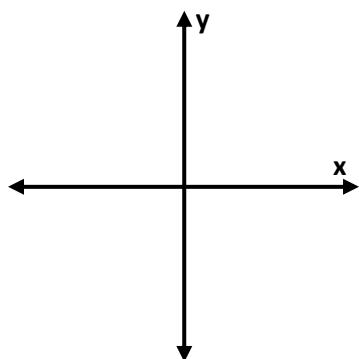


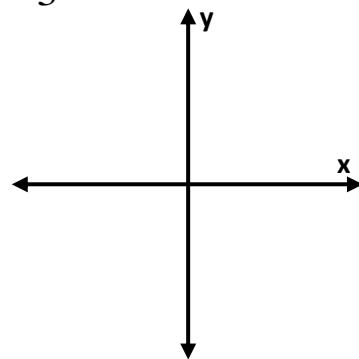
## Pg. 343 4.7 – Inverse Trigonometric Functions

**Recap:**

$$\sin 30^\circ$$



$$\sin \frac{\pi}{3}$$



The trig function of an angle measurement yields a \_\_\_\_\_.

The inverse trig function of a ratio yields an \_\_\_\_\_.

### Inverse Trig Function

$$y = \arcsin x \text{ OR } y = \sin^{-1} x \quad -90^\circ < \theta < 90^\circ \text{ OR } -\frac{\pi}{2} < \theta < \frac{\pi}{2}$$

$$y = \arccos x \text{ OR } y = \cos^{-1} x \quad 0 < \theta < 180^\circ \text{ OR } 0 < \theta < \pi$$

$$y = \arctan x \text{ OR } y = \tan^{-1} x \quad -90^\circ < \theta < 90^\circ \text{ OR } -\frac{\pi}{2} < \theta < \frac{\pi}{2}$$

### Quadrants

I & IV

I & II

I & IV

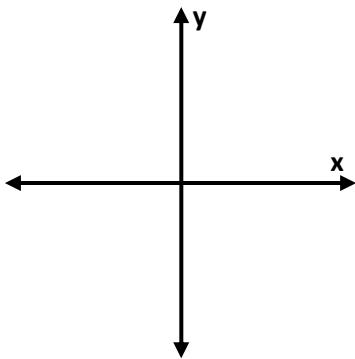
**Important:** The  $-1$  in  $\sin^{-1} x$  is NOT a power. It represent inverse notation,

just as  $f^{-1}(x)$  represent the inverse of  $f(x)$ .  $\sin^{-1} x \neq \frac{1}{\sin x}$

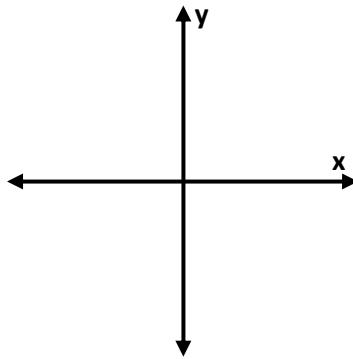
### **Ex 1:**

Evaluate without a calculator. State your answer in degrees and radians.

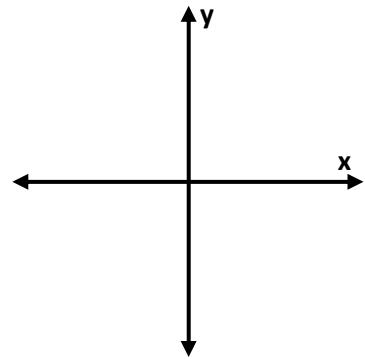
a)  $\arcsin\left(-\frac{1}{2}\right)$



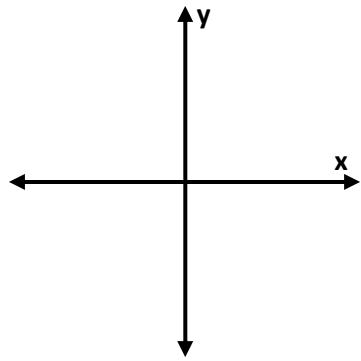
b)  $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$



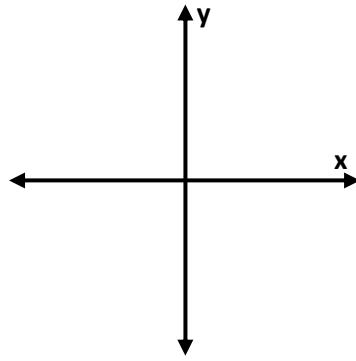
c)  $\sin^{-1}(2)$



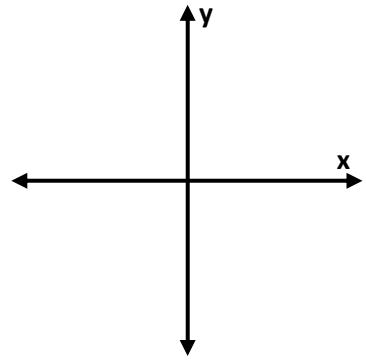
d)  $\arccos\left(\frac{\sqrt{2}}{2}\right)$



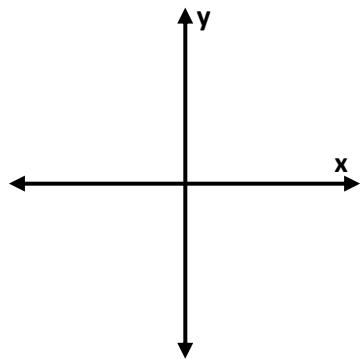
e)  $\cos^{-1}(-1)$



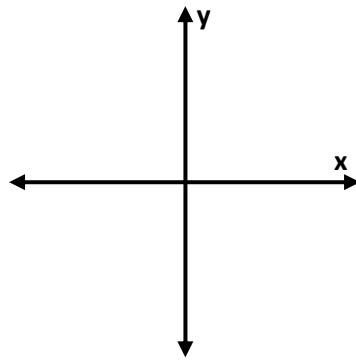
f)  $\arctan(0)$



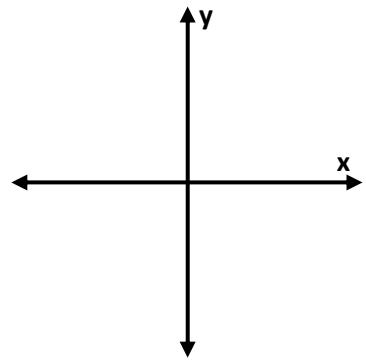
g)  $\tan^{-1}(-1)$



h)  $\cos^{-1}\left(-\frac{1}{2}\right)$



i)  $\tan^{-1}\left(-\frac{\sqrt{3}}{3}\right)$



**Ex 2:**

Use a calculator to evaluate. Round your result to the nearest hundredth.

a)  $\sin^{-1}(0.2447)$

b)  $\arctan(-8.45)$

c)  $\arccos(2)$

**Assignment 4.7**

Pg. 349 **REQUIRED:** Problem Set #'s 1-13 ODD, 19-33 ODD