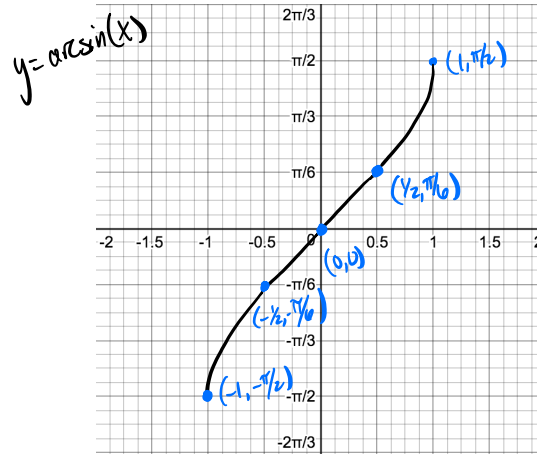
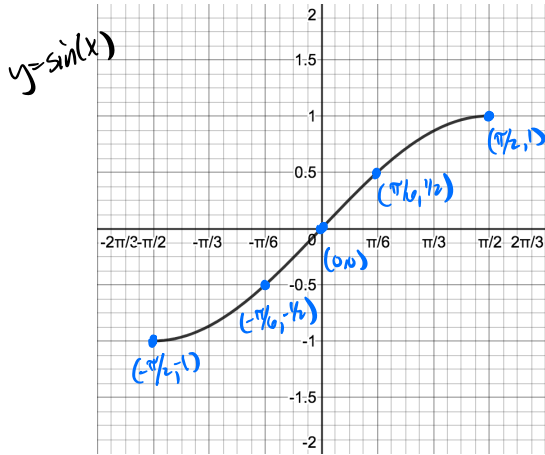
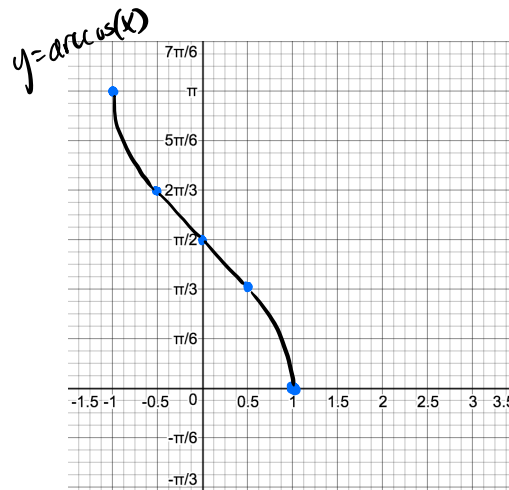
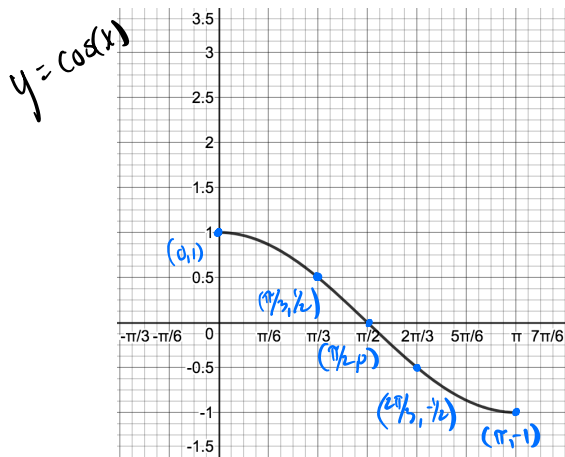


§1.7: Inverse Trig Functions

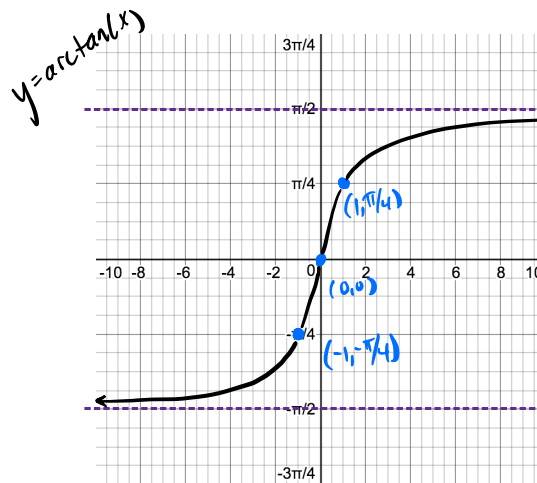
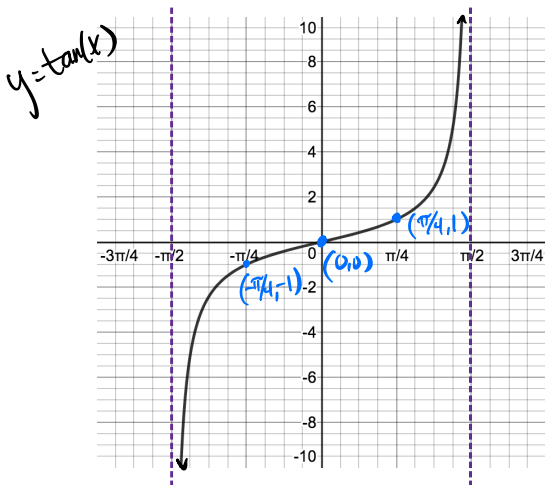
1.] Graph the inverse trig functions on the restricted domains below.



Domain: $[-1, 1]$
Range: $[-\pi/2, \pi/2]$



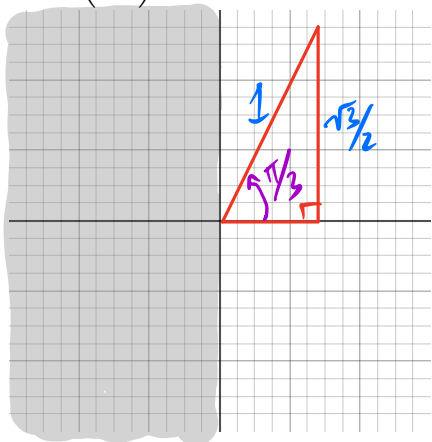
Domain: $[-1, 1]$
Range: $[0, \pi]$



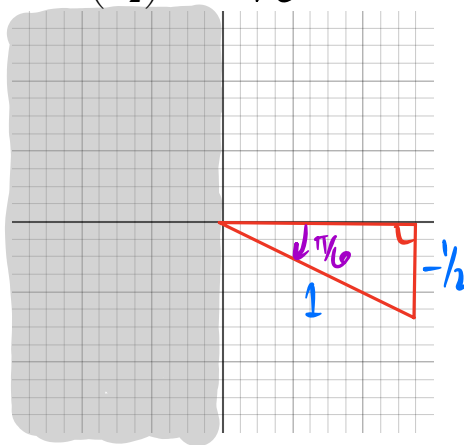
Domain: $(-\infty, \infty)$
Range: $(-\pi/2, \pi/2)$

2.] Find the *exact* value of the following inverse trigonometric functions by constructing a reference triangle on the provided grid paper.

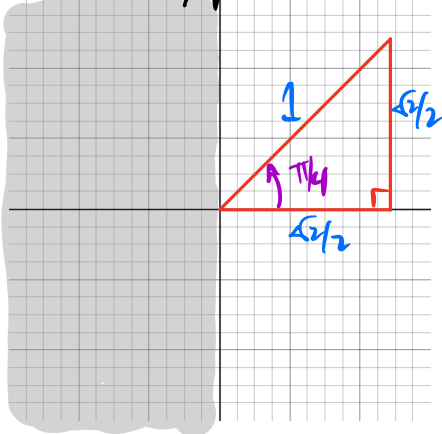
a.) $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{3}$



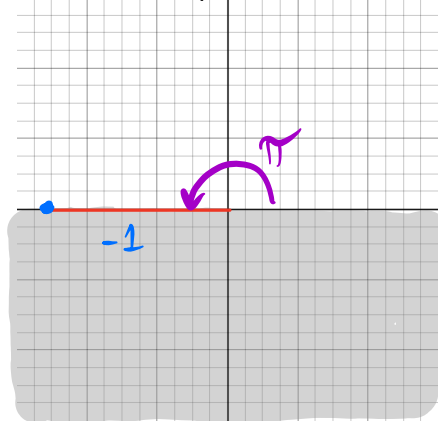
b.) $\arcsin\left(-\frac{1}{2}\right) = -\frac{\pi}{6}$



c.) $\arctan(1) = \frac{\pi}{4}$



d.) $\arccos(-1) = \pi$



3.] Evaluate the following expressions exactly.

a.) $\tan(\arccos(-5)) = \boxed{\text{DNE}}$

$\arccos(-5)$ is undefined because -5 is not in the domain.

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

$\cos^{-1}(x)$ and $\cos(x)$ are inverses!

c.) $\arcsin(\sin(\frac{5\pi}{3})) = \arcsin(-\frac{\sqrt{3}}{2}) = \boxed{-\frac{\pi}{3}}$

$\sin(\frac{5\pi}{3}) = -\frac{\sqrt{3}}{2}$

The answer is not $\frac{5\pi}{3}$ because $\frac{5\pi}{3}$ is not in the range of $\arcsin(x)$.