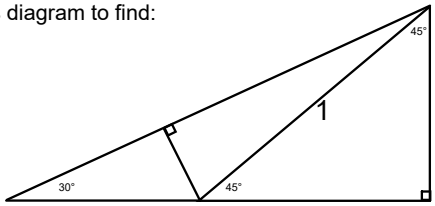
Capstone Problem - can we find the trigonometric values for angles other than those on the unit circle?

Use this diagram to find:

sin 15°



Chapter 4.7 - Inverse Trigonometric Functions

-Basic Notation and Definitions

-Understanding domain and range

-Solving/simplifying inverse trig expressions

-Solving/simplifying compound expressions

What is an inverse function?

$\sqrt{x^2} = (\sqrt{x})^2 =$

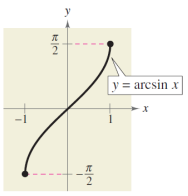
$f(f^{-1}(x)) = f^{-1}(f(x)) =$

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

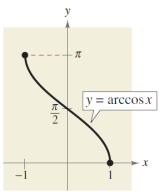
Inverse trig notation:

If **sin(y) = x**, then **$y = \sin^{-1}(x)$**

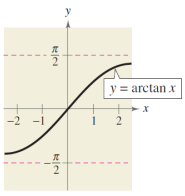
$\sin^{-1}(x)$ is equivalent to **arcsin(x)**



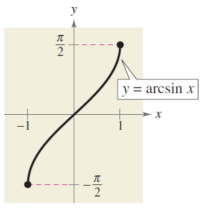
Domain: $[-1, 1]$
Range: $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$



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

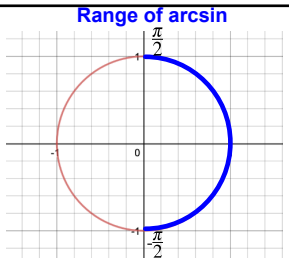


Domain: $(-\infty, \infty)$
Range: $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$



Domain: $[-1, 1]$
Range: $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

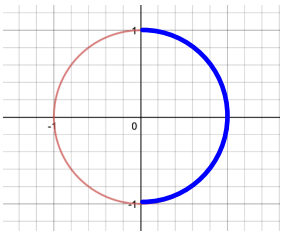
Range of arcsin

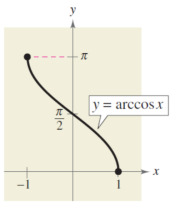


arcsin 0

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

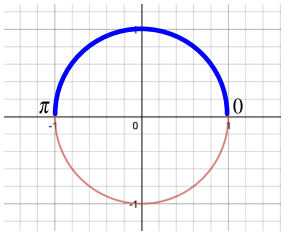
$\arcsin \frac{\sqrt{2}}{2}$





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

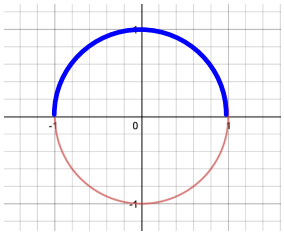
Range of arccos

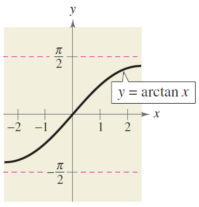


arccos 0

$\cos^{-1} 1$

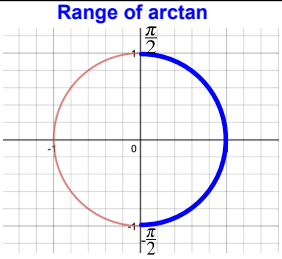
$\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$





Domain: $(-\infty, \infty)$
Range: $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$

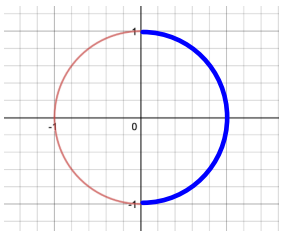
Range of arctan



arctan(1)

arctan $\sqrt{3}$

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



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

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

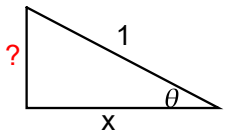
$tan\left(\arccos(-\frac{\sqrt{2}}{2})\right) =$

$\arcsin\left(\sin\frac{3\pi}{2}\right) =$

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

$sin(\arccos(x)) =$

$sin(\arccos(x)) =$



$cos(\arctan(2x)) =$

HW, Pg 347, #'s 5-19 odd

Pg 348, #'s 55-73 odd