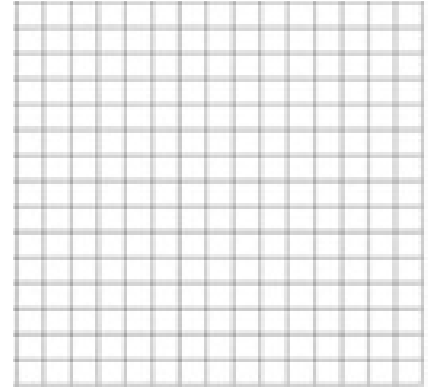
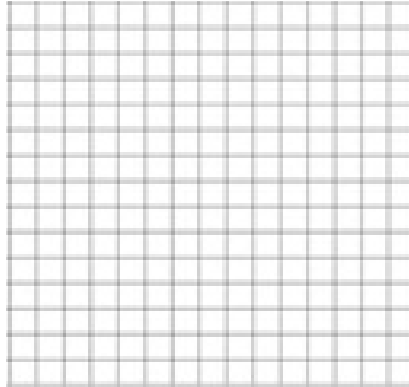


The Cosine Function:

$y = \cos(x)$

$y = \cos^{-1}(x)$

Restricted Domain:



Use your knowledge of the unit circle to fill out the following charts:

x	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π
$\cos(x)$									

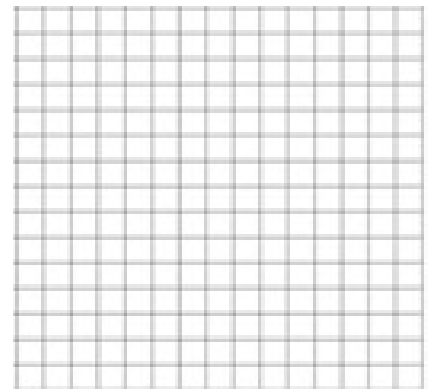
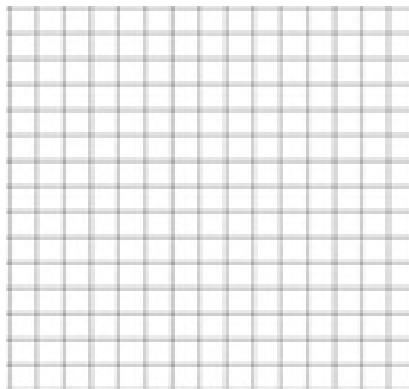
x	-1	$\frac{-\sqrt{3}}{2}$	$\frac{-\sqrt{2}}{2}$	$\frac{-1}{2}$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\cos^{-1}(x)$									

The Tangent Function:

$y = \tan(x)$

$y = \tan^{-1}(x)$

Restricted Domain:



Use your knowledge of the unit circle to fill out the following charts:

x	$\frac{-\pi}{2}$	$\frac{-\pi}{3}$	$\frac{-\pi}{4}$	$\frac{-\pi}{6}$	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
$\tan(x)$									

x	$-\sqrt{3}$	-1	$\frac{-\sqrt{3}}{3}$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$
$\tan^{-1}(x)$							

The Six Trigonometric Functions

Cosecant (csc)	Secant (sec)	Cotangent (cot)
Reciprocal of the _____	Reciprocal of the _____	Reciprocal of the _____
Ratio:	Ratio:	Ratio:
Draw an example:	Draw an example:	Draw an example:

Composing Trig and Inverse Trig functions:

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

$$\sin^{-1}\left(\sin\left(\frac{5\pi}{4}\right)\right)$$

Homework

-
1. Refer to the graph of $y = \tan^{-1}(x)$
- Find the domain
 - Find the range
 - Is the graph increasing or decreasing on the domain?
 - $\lim_{x \rightarrow \infty} \tan^{-1}(x) =$
 - $\lim_{x \rightarrow -\infty} \tan^{-1}(x) =$

2. Find each value in radians and degrees. Show your work.

$\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$	$\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$	$\tan^{-1}(-\sqrt{3})$
$\cos^{-1}(0)$	$\sin^{-1}(-1)$	$\tan^{-1}\left(\frac{\sqrt{3}}{3}\right)$

3. Evaluate the following compositions of trigonometric functions

<p>Hint: use the Pythagorean theorem for this one</p> $\sin \left(\cos^{-1} \left(\frac{3}{5} \right) \right)$	$\cos \left(\tan^{-1} (-1) \right)$
$\sin \left(\sin^{-1} \left(-\frac{\sqrt{2}}{2} \right) \right)$	$\cos \left(\sin^{-1} \left(-\frac{1}{2} \right) \right)$
$\sin \left(\cos^{-1} \left(\frac{\sqrt{3}}{2} \right) \right)$	$\tan \left(\cos^{-1} \left(-\frac{\sqrt{2}}{2} \right) \right)$

4. If $\cos(\theta) = -\frac{5}{8}$ and $\frac{\pi}{2} \leq \theta \leq \pi$ find the other 5 trigonometric ratios.