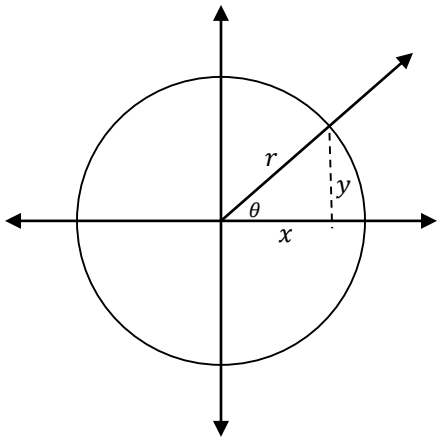


Assignment #5: Trigonometry – you may work in the packet rather than a separate sheet of paper for this section only.



Trig Identities: SOH CAH TOA

$$\sin \theta = y/r$$

$$\cos \theta = x/r$$

$$\tan \theta = y/x$$

$$\cot \theta = x/y$$

$$\sec \theta = r/x$$

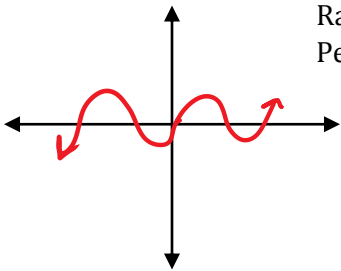
$$\csc \theta = r/y$$

Graphs of Trig Functions:

Graph the following trig functions from $-2\pi \leq x \leq 2\pi$. Be sure to clearly label the intercepts.

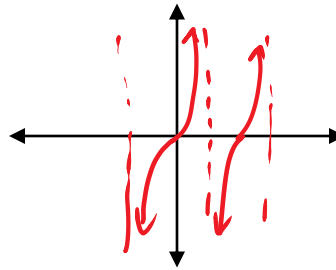
1. $y = \sin x$

Domain: \mathbb{R}
Range: $[-1, 1]$
Period: 2π



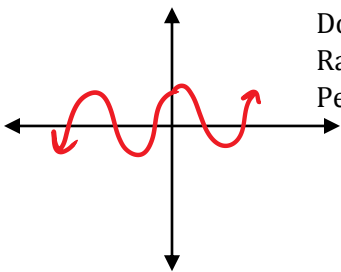
3. $y = \tan x$

Domain: $\mathbb{R}: x \neq \frac{\pi}{2} \pm k\pi$
Range: \mathbb{R}
Period: π



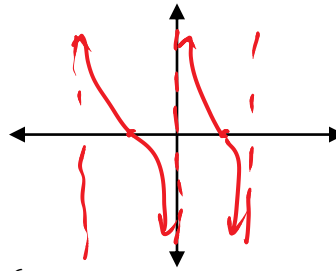
2. $y = \cos x$

Domain: \mathbb{R}
Range: $[-1, 1]$
Period: 2π



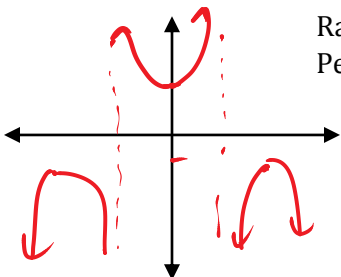
4. $y = \cot x$

Domain: $\mathbb{R}: x \neq 0 \pm k\pi$
Range: \mathbb{R}
Period: π



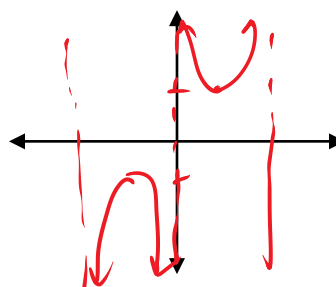
5. $y = \sec x$

Domain: $\mathbb{R}: x \neq \frac{\pi}{2} \pm k\pi$
Range: $y \leq -1, y \geq 1$
Period: 2π



6. $y = \csc x$

Domain: $\mathbb{R}: x \neq \pm k\pi$
Range: $y \leq -1, y \geq 1$
Period: 2π



Solve for θ using your calculator.

→ in radians

* Always 3 decimal places

1. $\sin \theta = 0.7$ $\sin^{-1}(0.7) = .775$

2. $\tan \theta = -2$ $\tan^{-1}(-2) = -1.107$

3. $\cot \theta = 5$ $\frac{1}{\tan \theta} = 5 \rightarrow \tan \theta = \frac{1}{5}$ $\tan^{-1}(\frac{1}{5}) = .197$

Unit Circle:

1. Complete the table below with the exact values. (NO DECIMALS and NO CALCULATORS!)

	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	π
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	0
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	-1
tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	undefined	0

2. $\sin \frac{5\pi}{6} = \frac{1}{2}$

3. $\cos \frac{3\pi}{4} = -\frac{\sqrt{2}}{2}$

4. $\tan \frac{2\pi}{3} = \frac{\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = -\sqrt{3}$

5. $\sec \frac{\pi}{3} = \frac{1}{\frac{1}{2}} = 2$

6. $\cot \frac{\pi}{2} = \frac{0}{1} = 0$

7. $\cos \frac{7\pi}{6} = -\frac{\sqrt{3}}{2}$

8. $\sin \frac{5\pi}{3} = -\frac{\sqrt{3}}{2}$