Name _____   Date _____

Using and Understanding the Unit Circle - Guided Lesson Explanation
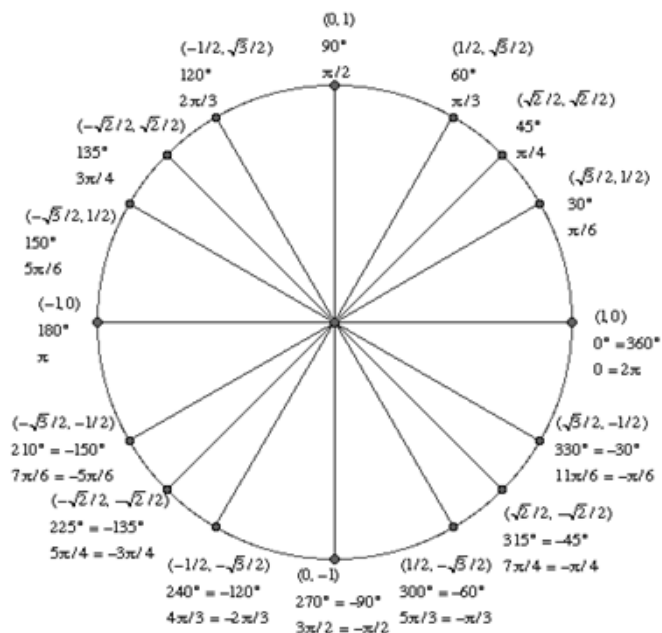
For all the problems, we will use the unit circle as a guide and we need to remember our trigonometric identities.

$\tan \theta = \frac{\sin \theta}{\cos \theta}$ $\cot \theta = \frac{\cos \theta}{\sin \theta}$

$\sec \theta = \frac{1}{\cos \theta}$ $\cot \theta = \frac{1}{\sin \theta}$

$\sin(x) = \cos(x - \pi/2)$

$\csc \theta = \frac{1}{\sin \theta}$

Explanation#1

If the $\sin \theta = \frac{6}{16}$ so the trigonometric is:

$\cos \theta = \cos(x) = \sin(\pi/2 - x) = \frac{55}{4}$

$\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{3}{110}$

$\sec \theta = \frac{1}{\cos \theta} = \frac{4}{55}$

$\csc \theta = \frac{1}{\sin \theta} = \frac{8}{3}$

Explanation#2

If the $\sin \theta = \frac{2}{12}$ so the trigonometric is:

$\cos \theta = \cos(x) = \sin(\pi/2 - x) = \frac{35}{3}$

$\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{1}{70}$

$\sec \theta = \frac{1}{\cos \theta} = \frac{3}{35}$

$\csc \theta = \frac{1}{\sin \theta} = 6$

Explanation#3

If the $\cos \theta = \frac{10}{15}$ so the trigonometric is:

$\sin \theta = \sin(x) = \cos(x - \pi/2) = \frac{\sqrt{5}}{3}$

$\tan \theta = \frac{\sin \theta}{\cos \theta} \quad = \frac{\sqrt{5}}{2}$

$\sec \theta = \frac{1}{\cos \theta} \quad = \frac{3}{2}$

$\csc \theta = \frac{1}{\sin \theta} \quad = \frac{3}{\sqrt{5}}$