

Unit #3: Trigonometry

Topic: The Unit Circle

Objective: *SWBAT find the value of a trigonometric expression by using the unit circle.*

Warm Up #1:

Fill in the missing values in each of the charts given below:

<i>Function</i>	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$
<i>sin</i>			
<i>cos</i>			
<i>tan</i>			

<i>Function</i>	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$	2π
<i>sin</i>				
<i>cos</i>				
<i>tan</i>				



The radian measure of an angle is the arc length of the angle on the unit circle.

Relationship between radians and degrees.

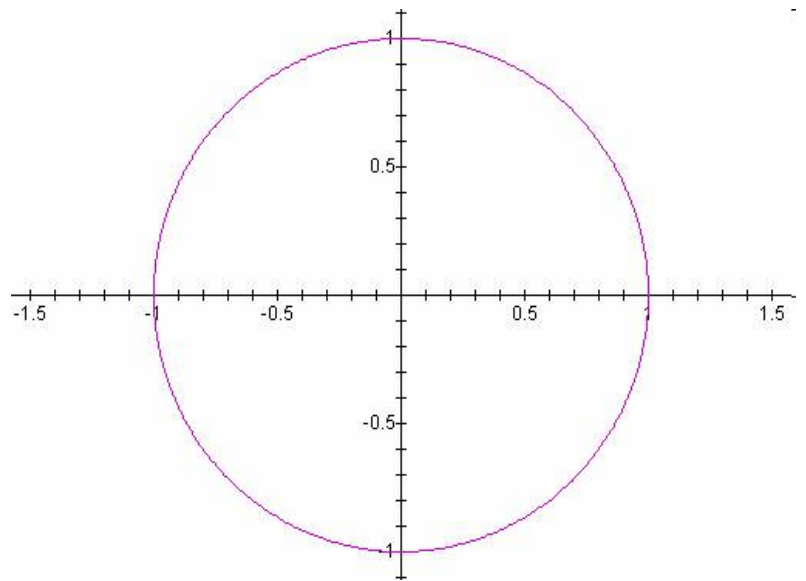
<i>Degrees to Radians:</i>	<i>Radians to Degrees:</i>
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A reference angle is the acute angle formed between the terminal side of a given angle and the x -axis.

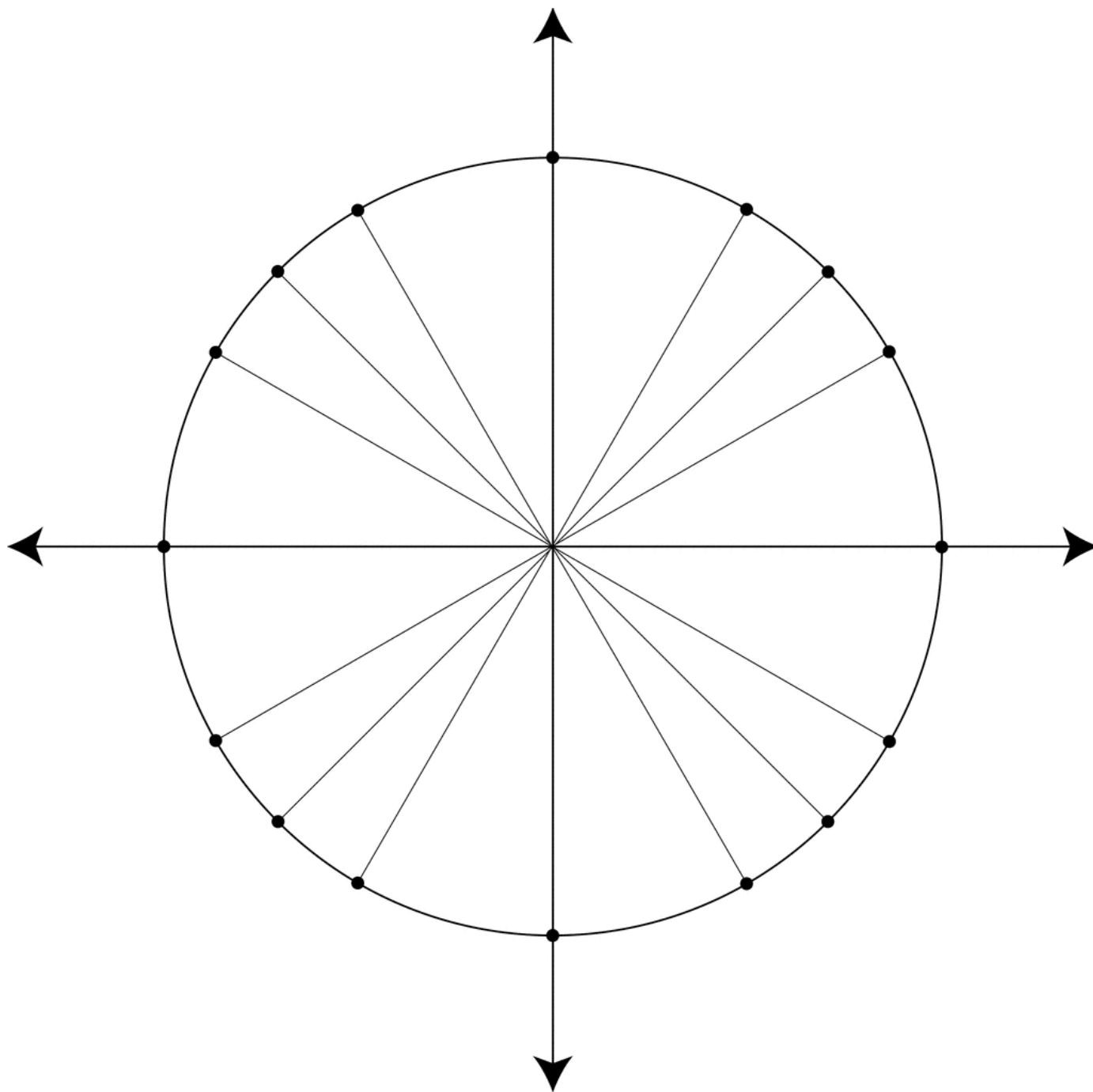
The unit circle has a center at the origin $(0,0)$ and radius of one unit.

For any point (x, y) on the circle, the lengths x and y become the legs of a right triangle whose hypotenuse is 1.

$\sin \theta =$
$\cos \theta =$
$\tan \theta =$
$\text{So } (x, y) =$



The unit circle is a wonderful reference tool for determining EXACT trigonometric values.



Problem Set #1:Find the point (x, y) on the unit circle that corresponds to the real number t :

1) $t = \frac{5\pi}{6}$	2) $t = \frac{8\pi}{3}$
3) $t = -\frac{3\pi}{4}$	4) $t = -\pi$

Find the exact value for each of the following trigonometric functions:

5) $\sin \frac{7\pi}{4} =$	6) $\tan \frac{11\pi}{4} =$
7) $\csc \frac{7\pi}{6} =$	8) $\cos -\frac{5\pi}{2} =$
11) $\sin -\frac{\pi}{6} =$	12) $\cot \frac{5\pi}{3} =$
13) $\cos \frac{5\pi}{6} =$	14) $\sec \frac{3\pi}{4} =$
15) $\sin -\frac{4\pi}{3} =$	16) $\csc -\frac{2\pi}{3} =$
17) $\sin \frac{9\pi}{4} =$	18) $\cos \frac{10\pi}{3} =$
19) $\tan = -\frac{13\pi}{6}$	20) $\sec \frac{5\pi}{4} =$

