Lesson 67 Objective: SWBAT use the unit circle to find the terminal angle.

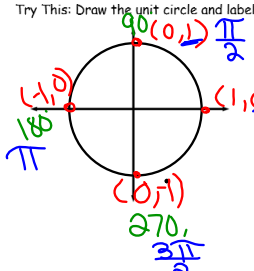
Kickoff

1) If θ in standard position is $\frac{5\pi}{6}$ find the coordinate of the point that intersects the unit circle.

2) If θ is an angle in standard position and intersects the unit circle at P. Find all six trigonometric functions. $P(\frac{-\sqrt{3}}{2}, \frac{-1}{2})$

Unit Circle Day 2

Try This: Draw the unit circle and label the points on the axes



$\sin\theta =$ y

$\cos\theta =$ x

$\tan\theta = \frac{y}{x} = \frac{\sin\theta}{\cos\theta}$

$P(x,y) =$ $(\cos\theta, \sin\theta)$

Quadrant Angles: Fill in the chart using the unit circle above.

θ	$0°, 360°$ $0, 2\pi$	$90°$ $\frac{\pi}{2}$	$180°$ π	$270°$ $\frac{3\pi}{2}$
$\sin\theta$	0	1	0	-1
$\cos\theta$	1	0	-1	0
$\tan\theta$	0	DNE	0	DNE

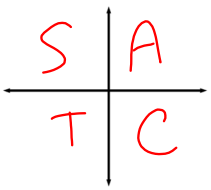
* 90° is $\frac{\pi}{2}$ in rad.

Trig Functions in the Quadrants:

II (-,+) I (+,+)

III (-,-) IV (+,-)

How To Remember:

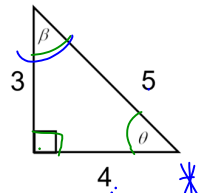


All students take calc.

Determine which quadrant that θ lies in.

1) $\sin\theta > 0, \cos\theta < 0$ II
2) $\tan\theta < 0, \cos\theta > 0$ IV
3) $\cos\theta > 0, \tan\theta > 0$ I
4) $\sin\theta < 0, \cos\theta < 0$ III
5) $\csc\theta > 0, \cos\theta < 0$ II
6) $\cot\theta > 0, \sec\theta < 0$ III (sine, tane, cose)
7) $\sin\theta < 0, \cot\theta > 0$ III

Cofunctions:



$\beta + \theta =$ 90

$\sin\beta = \frac{4}{5}$

$\cos\theta = \frac{4}{5}$

* ∠'s add 90° and are ≅

Trig Function	Cofunction
sin θ	cos θ
sec θ	csc θ
tan θ	cot θ

Ex: $\cot(x - 10°) = \tan(4x°)$

$x - 10 + 4x = 90$

$5x - 10 = 90$

$5x = 100$

$x = 20$

tan