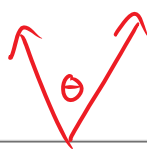
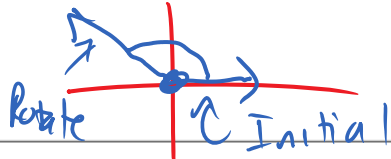


4.3 Day 1

Tuesday, January 5, 2016 3:38 PM

A series of horizontal blue lines for writing, with a vertical red margin line on the left side.

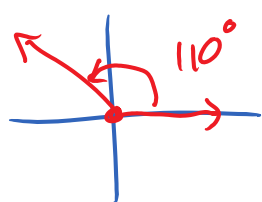
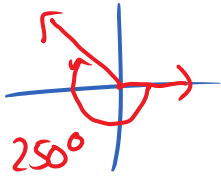
An Angle: Defined

GEOMETRY	TRIGONOMETRY
 <p>2 rays</p>	 <p>Rotate Initial</p>

Standard Position:

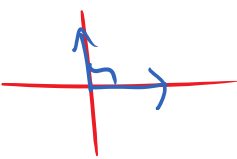
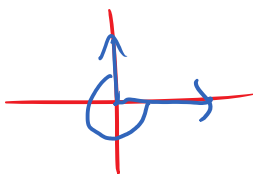
- Vertex at (0,0).
- Initial side lays on the positive x-axis

Angle Measure:

POSITIVE ANGLES:	NEGATIVE ANGLES:
 <p>110° Counterclockwise</p>	 <p>-250° Clockwise</p>

Coterminal Angles:

- Examine 90° and -270°

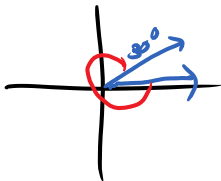
		$\begin{array}{r} 90^\circ \\ -360 \\ \hline -270^\circ \end{array}$	$\begin{array}{r} -270 \\ +360 \\ \hline 90^\circ \end{array}$
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- Angles are coterminal when they differ by 360° or 2π

Examples: Find and draw a positive and negative angle that are coterminal with the given angle.

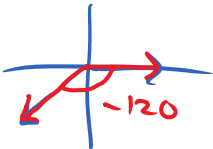
a. 30°

390°
 -330°



b. $-\frac{2\pi}{3}$ radians

$+2\pi \Rightarrow \frac{4\pi}{3}$ 240°
 $-2\pi \Rightarrow -\frac{8\pi}{3}$ -480°

π  -120°

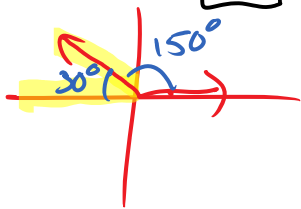
$-\frac{2\pi}{3} + \frac{6\pi}{3}$

Reference Angle: The \angle made with the terminal side and the x-axis (Always the acute \angle made w/ x-axis)

Find the reference angle of the following measures.

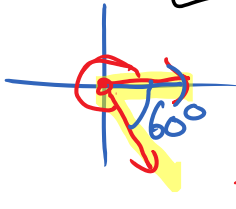
a. 150°

30°



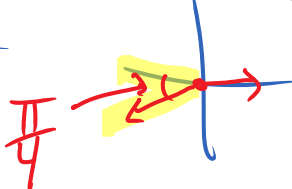
b. 300°

60°

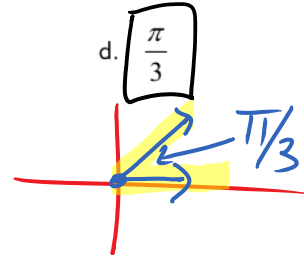


c. $\frac{5\pi}{4}$

$\frac{\pi}{4}$

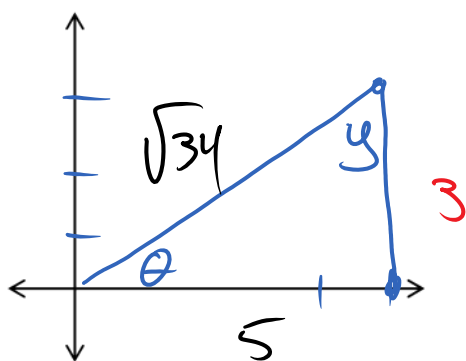


d. $\frac{\pi}{3}$



Practice!

1. Let θ be the acute angle in standard position whose terminal side contains the point (5,3). Find the six trig functions of θ .

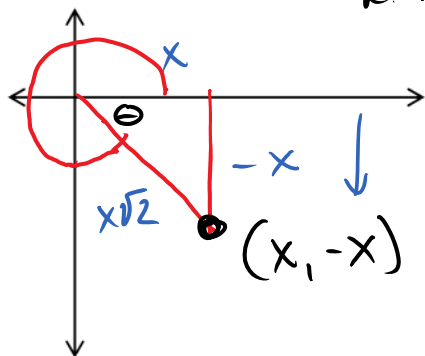


$$\begin{aligned} \sin \theta &= \frac{3}{\sqrt{34}} & \csc \theta &= \frac{\sqrt{34}}{3} \\ \cos \theta &= \frac{5}{\sqrt{34}} & \sec \theta &= \frac{\sqrt{34}}{5} \\ \tan \theta &= \frac{3}{5} & \cot \theta &= \frac{5}{3} \end{aligned}$$

$\theta = 30.96^\circ$

2. Find the six trig functions of 315° .

R.A.: 45°



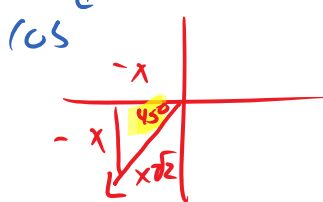
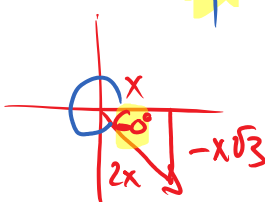
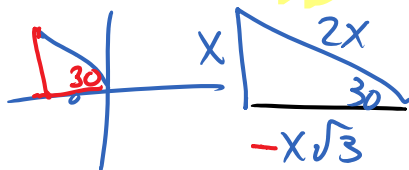
$$\begin{aligned} \sin \theta &= \frac{-1}{\sqrt{2}} & \csc \theta &= -\sqrt{2} \\ \cos \theta &= \frac{1}{\sqrt{2}} & \sec \theta &= \sqrt{2} \\ \tan \theta &= -1 & \cot \theta &= -1 \end{aligned}$$

3. Solve without using a calculator! Find the reference angle, then use special right triangle ratios.

a. $\sin(-210^\circ) = \frac{1}{2}$

b. $\tan\left(\frac{5\pi}{3}\right) = \frac{\sqrt{3}}{1}$

c. $\sec\left(-\frac{3\pi}{4}\right) = \frac{\sqrt{2}}{-1} = -\sqrt{2}$



What happens when the angle falls on an axis? We call these _____.

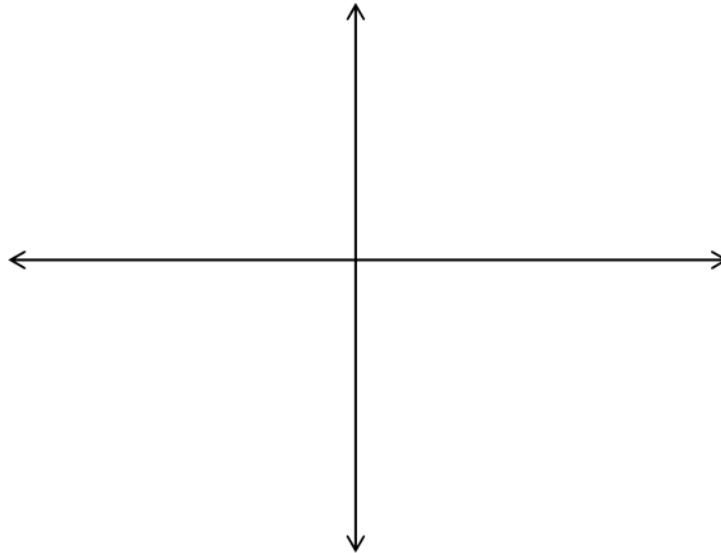
4. Solve without using a calculator!

a. $\sin(-270^\circ) =$

b. $\tan(3\pi) =$

c. $\sec\left(\frac{11\pi}{2}\right) =$

To sum it all up!



Can we make a connection between the x- and y-coordinates and the trig functions??