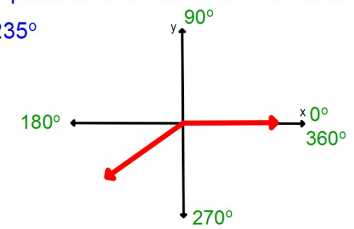
Monday, April 27, 2020

Location of Terminal Side.
and
Angles in Radians in Standard Position.

It's going to be helpful to know in which Quadrant the terminal side of an angle in Standard Position is located.

In what quadrant is the terminal side of this given angle?

1. $\theta=235^\circ$



235 is between 180 and 270.

Terminal side of 235° is in Quadrant III.

If the measure of the given angle isn't already between 0° & 360° you'll have to first find a coterminal angle such that $0^\circ \leq \theta \leq 360^\circ$

In what quadrant is the terminal side of this given angle?

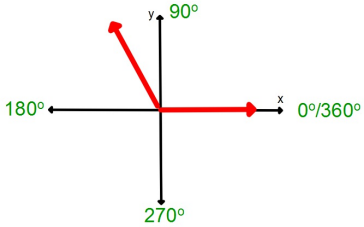
2. $\theta = 480^\circ$

Coterminal:
$\theta = 480 - 360 = 120^\circ$

Terminal side of 480° is in the same Quadrant as 120°

120 is between 90 and 180.

Terminal side of 480° is in Quadrant II.



In what quadrant is the terminal side of this given angle?

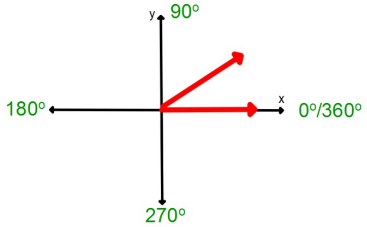
3. $\theta = -690^\circ$

Coterminal:
$\theta = -690 + 720 = 30^\circ$

Terminal side of -690° is in the same Quadrant as 30°

30 is between 0 and 90.

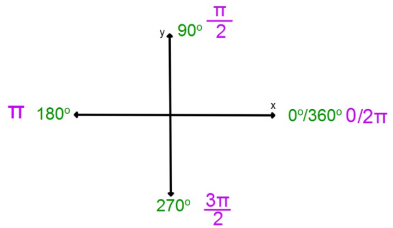
Terminal side of -690° is in Quadrant I.



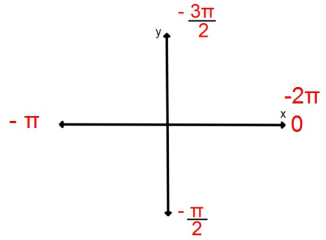
Standard Position for angles in Radians.

When dealing with an angle in radians you'll need to know the measure of each axes in radians.

Remember, 1 full turn around a circle in radians = 2π

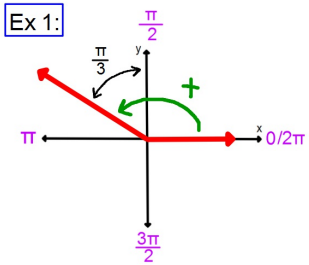


The measure of each axes in radians, in a negative direction:



Give both a Positive and a Negative measure of this angle, in radians, which is in Standard Position.

Ex 1:



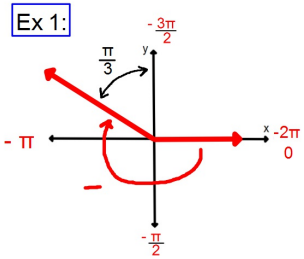
Positive Measure:

$$\theta = \frac{3}{3}\cdot\frac{\pi}{2} + \frac{\pi}{3}\cdot\frac{2}{2}$$

$$= \frac{3\pi}{6} + \frac{2\pi}{6} = \boxed{\frac{5\pi}{6}}$$

Give both a Positive and a Negative measure of this angle, in radians, which is in Standard Position.

Ex 1:

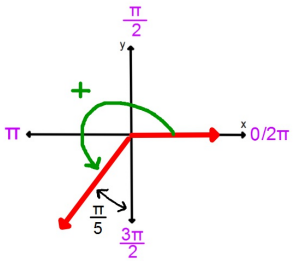


Negative Measure:

$$\theta = -\left(\frac{3\pi}{2} - \frac{\pi}{3}\right)$$

$$= -\left(\frac{9\pi}{6} - \frac{2\pi}{6}\right) = \boxed{-\frac{7\pi}{6}}$$

Ex 2: Give both a Positive and a Negative measure of this angle, in radians, which is in Standard Position.



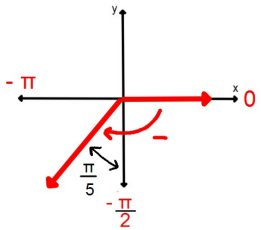
Positive Measure:

$$\theta = \frac{5}{5}\cdot\frac{3\pi}{2} - \frac{\pi}{5}\cdot\frac{2}{2}$$

$$= \frac{15\pi}{10} - \frac{2\pi}{10} = \boxed{\frac{13\pi}{10}}$$

Ex 2: Give both a Positive and a Negative measure of this angle, in radians, which is in Standard Position.

Negative Measure:



$$\theta = -\left(\frac{\pi}{2} + \frac{\pi}{5}\right)$$

$$= -\left(\frac{5\pi}{10} + \frac{2\pi}{10}\right) = \boxed{-\frac{7\pi}{10}}$$

You should now be able to do the first half of Practice #22.

We'll work on the second half tomorrow.