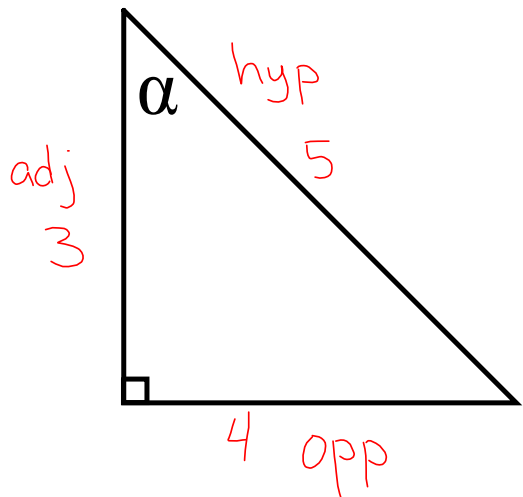


Bell work

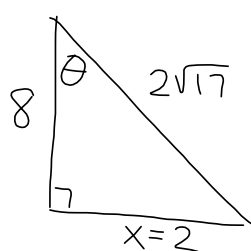


Given: $\cos \alpha = \frac{3}{5}$ adj
hyp

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

$$\tan \alpha = \frac{4}{3}$$

3)



$$8^2 + x^2 = (2\sqrt{17})^2$$

$$\begin{array}{r} 64 + x^2 = 68 \\ -64 \quad -64 \end{array}$$

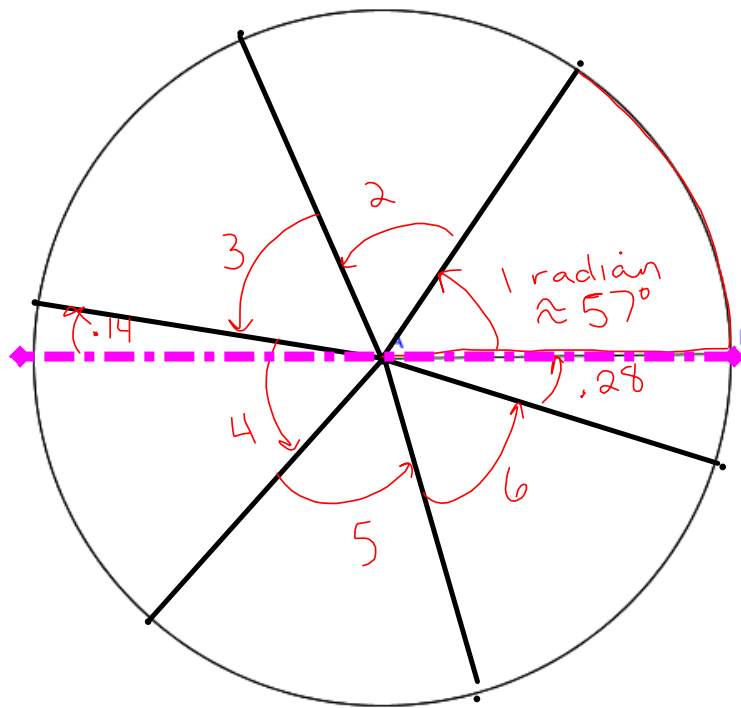
$$x^2 = 4$$

$$x = \sqrt{4}$$

$$x = 2$$

Degrees aren't the only way to measure angles!

Activity



360° 1 rotation
180° 1/2 rotation

3.14 $\frac{1}{2}$ rotation
 π radians

6.28 Rotation
 2π radians

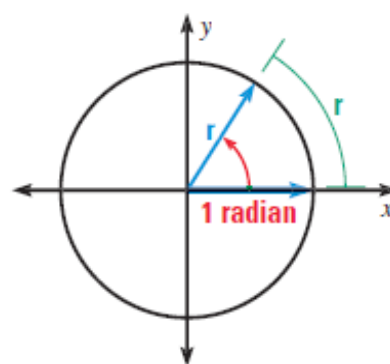
So, we know there are 360 degrees in a full rotation.

What about radians?

- About how many radians are in a full rotation?
6.28 radians
- About how many radians are in a half rotation?
3.14 radians
- Exactly how many radians are in a full rotation?
 2π
- Exactly how many radians are in a half rotation?
 π

RADIAN MEASURE Angles can also be measured in *radians*. To define a radian, consider a circle with radius r centered at the origin as shown. One **radian** is the measure of an angle in standard position whose terminal side intercepts an arc of length r .

Because the circumference of a circle is $2\pi r$, there are 2π radians in a full circle. Degree measure and radian measure are therefore related by the equation $360^\circ = 2\pi$ radians, or $180^\circ = \pi$ radians.



How do you convert from degrees to radians?

$$57^\circ \left(\frac{\pi}{180^\circ} \right) = \frac{19\pi}{60}$$

$$90^\circ \left(\frac{\pi}{180^\circ} \right) = \frac{\pi}{2}$$

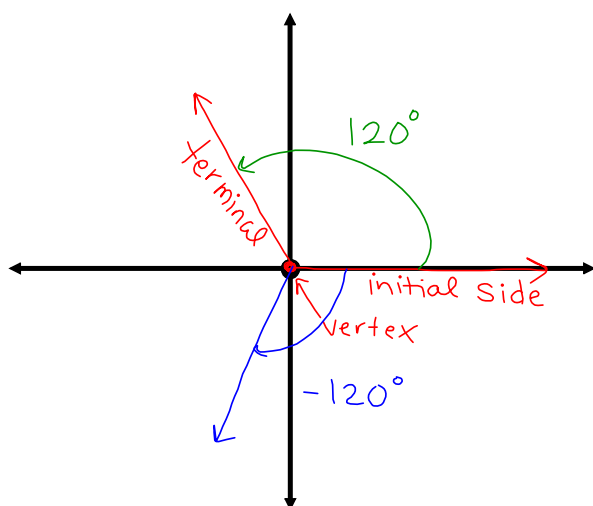
$$330^\circ \left(\frac{\pi}{180^\circ} \right) = \frac{11\pi}{6}$$

How do you convert from radians to degrees?

$$\frac{7\pi}{4} \left(\frac{180^\circ}{\pi} \right) = 315^\circ$$

$$\frac{11\pi}{6} \left(\frac{180^\circ}{\pi} \right) = 330^\circ$$

$$3 \left(\frac{180^\circ}{\pi} \right) \approx 171.9^\circ$$

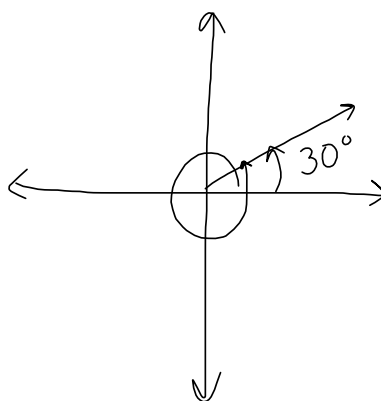
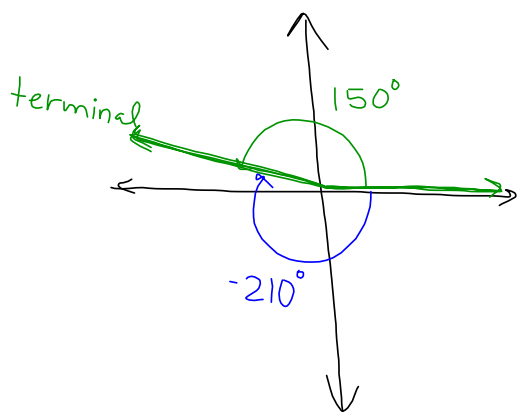


standard position-

positive- Rotate CC

negative- Rotate clockwise

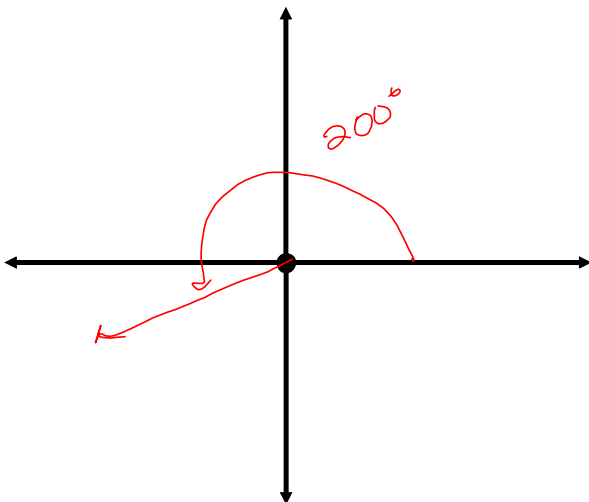
coterminal- angles share
the same
terminal side



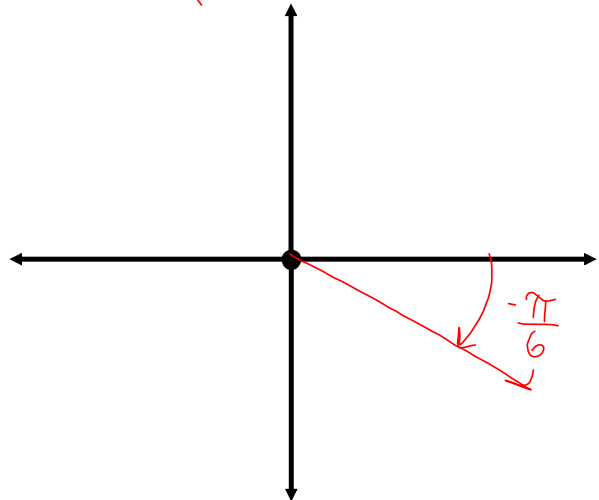
390°
 30° } coter

Sketch the following angles in standard position.

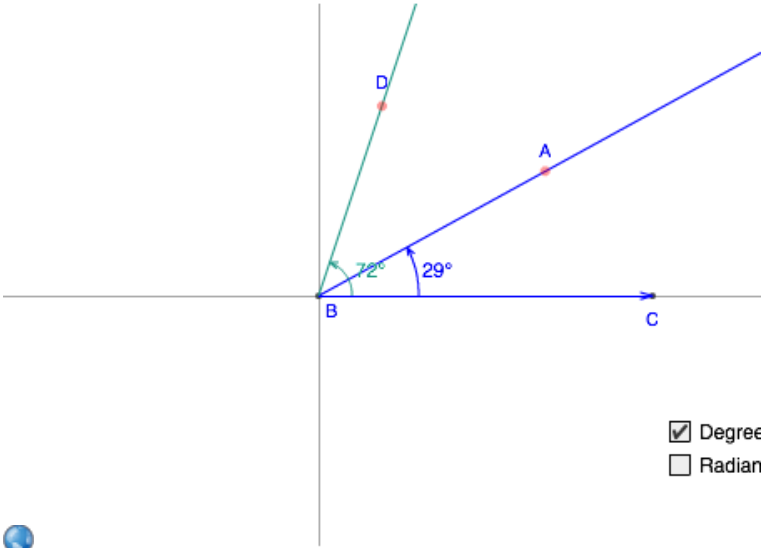
200°



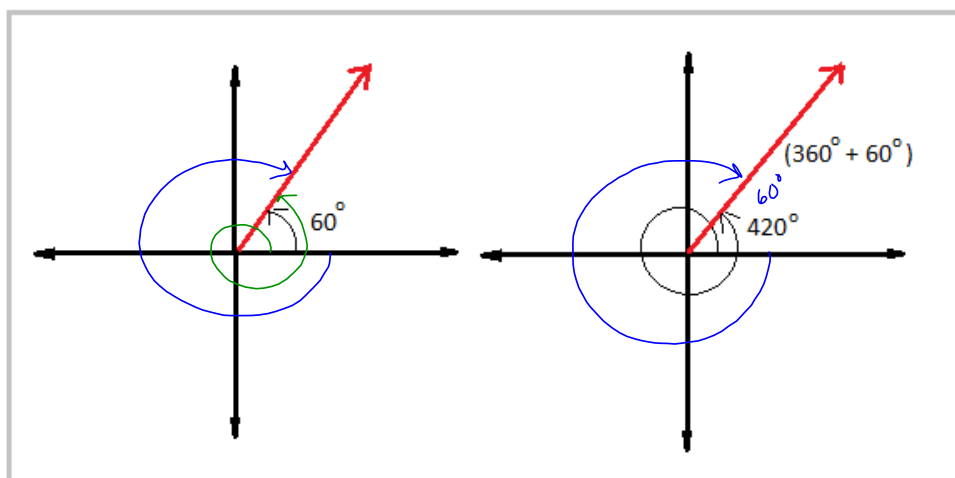
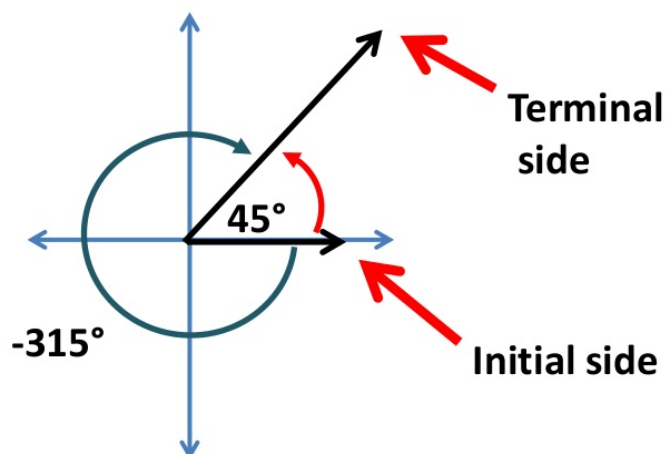
$$\frac{-\pi}{6} \left(\frac{180^\circ}{\pi} \right) = -30^\circ$$



Coterminal Angles

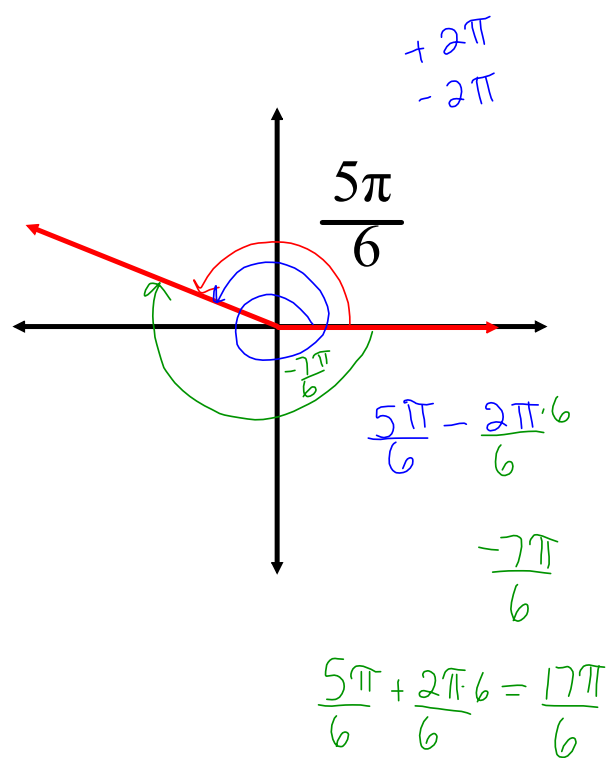
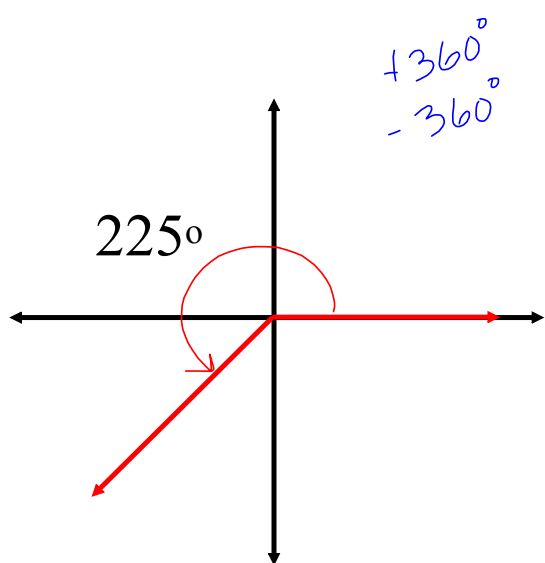


Find the measure of the two coterminal angles



1 positive 420° , 2220°
 1 negative -300°

1 positive 60°
 1 negative -300°



Find a positive and negative coterminal angle for each given angle.

$$130^\circ$$

$$450^\circ$$

$$-200^\circ$$

$$\frac{3\pi}{4}$$

$$\frac{-12\pi}{5}$$

$$\frac{10\pi}{12}$$

Solve the following triangle.

