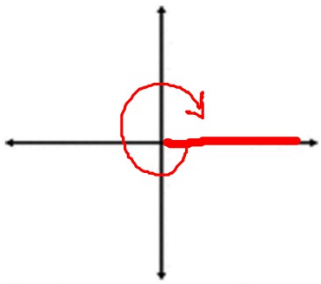
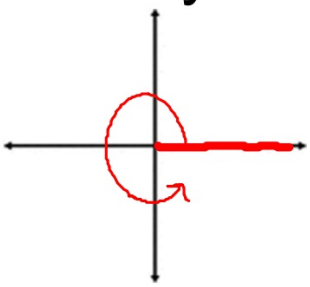
Bellwork

Answer the following questions:

1. Which way is clockwise?



2. Which way is counter clockwise?



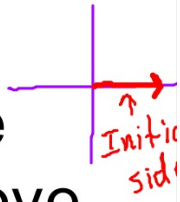
3. How many degrees in a full circle? Radians?

360° 2π

Angles in Standard Position

Consist of two sides:

1. Initial Side - The side that lies on the x-axis and does not move.
2. Terminal Side - The side that moves to form the desired angle.



Determining the path or rotation:

1. Clockwise - If the angle is NEGATIVE.
2. Counter Clockwise - If the angle is POSITIVE.

Types of Angles

We will focus on two modes of angle measurement:

1. Degrees - You will know it is in degrees IF you see the degree symbol.

2. Radians - You will know it is in radians IF you see the pi (π) symbol.

Switching Angle Measurements

To change an angle measurement from degrees to radians:

Multiply by $\frac{\pi}{180}$

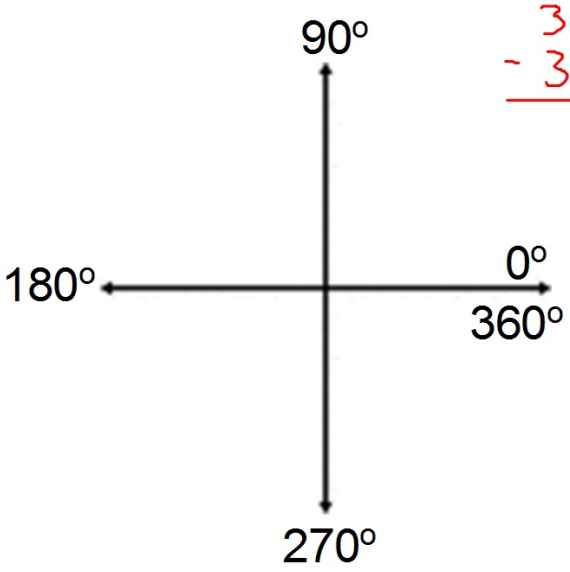
To change an angle measurement from radians to degrees:
(HIGHLY RECOMMENDED FOR THESE)

Multiply by $\frac{180}{\pi}$

Graphing Using POSITIVE Degrees

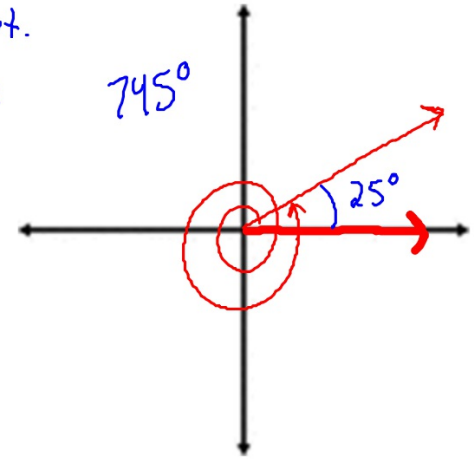
MUST SHOW DIRECTION OF ROTATION WITH AN ARROW!

Model



Example: 745°

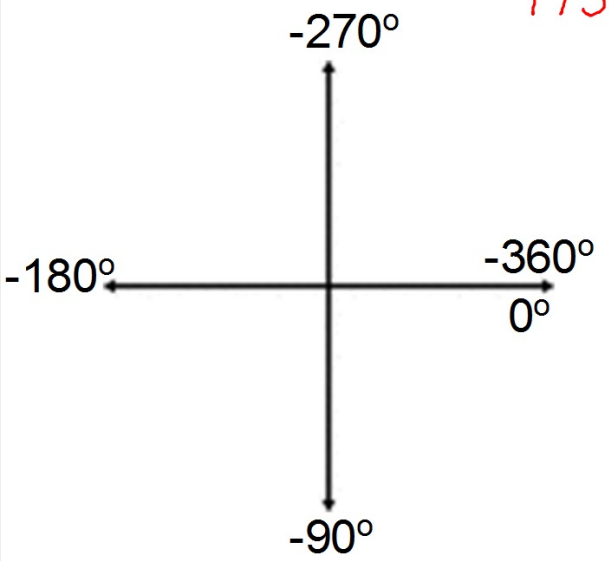
745
−360 ← 1 rot.
385
−360 ← 2nd Rot.
25° ← extra



Graphing Using NEGATIVE Degrees

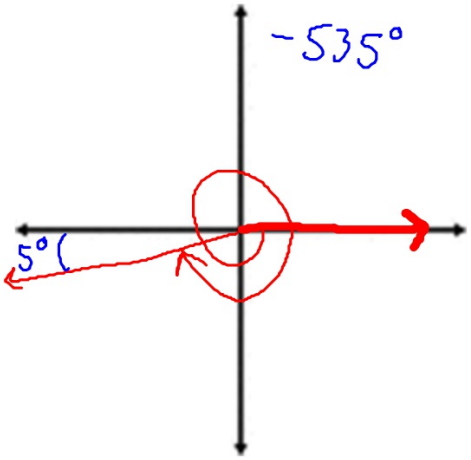
Model

-535°
$+360$ ← 1 rot.
-175°



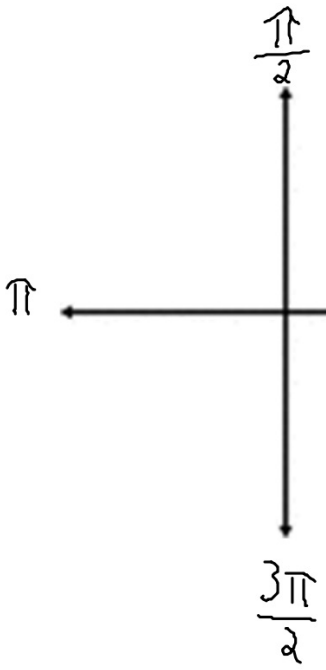
MUST SHOW DIRECTION OF ROTATION WITH AN ARROW!

Example: -535°



Graphing Using POSITIVE Radians

Model



810°
-360° 1 rot.
450°
-360° 2 Rots.
90° extra

Convert back

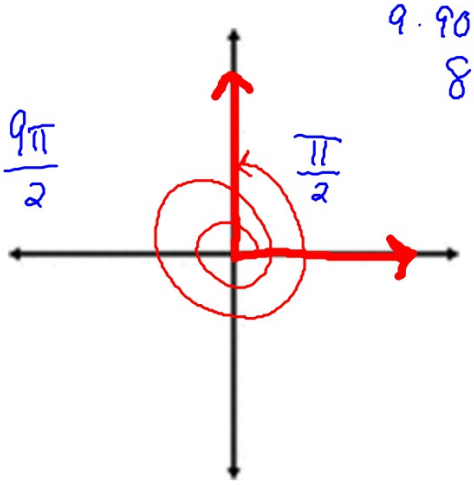
$\frac{90^\circ}{1} \cdot \frac{\pi}{180} = \frac{\pi}{2}$

MUST SHOW DIRECTION OF ROTATION WITH AN ARROW!

Example: $\frac{9\pi}{2} \cdot \frac{180}{\pi}$

$9 \cdot 90$

810°

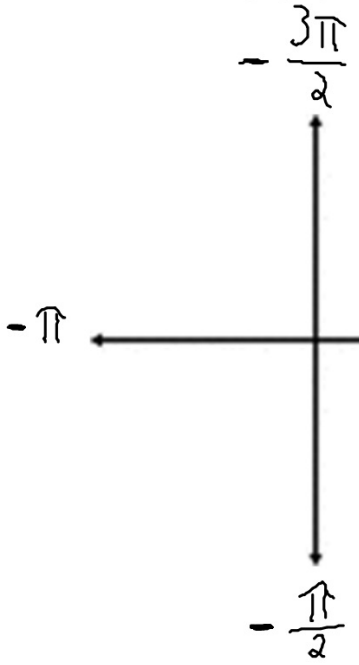


Convert to Degrees:

Graphing Using NEGATIVE Radians

Model

-432°
$+360^\circ$ 1 rot
-72° Extra



Convert back:

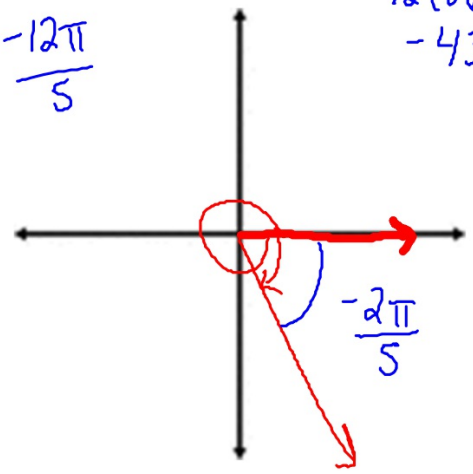
$-72\left(\frac{\pi}{180}\right)$

MUST SHOW DIRECTION OF ROTATION WITH AN ARROW!

Example: $\frac{-12\pi}{5} \cdot \frac{180}{\pi}$

$-12(36)$
-432°

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



Convert to Degrees: