

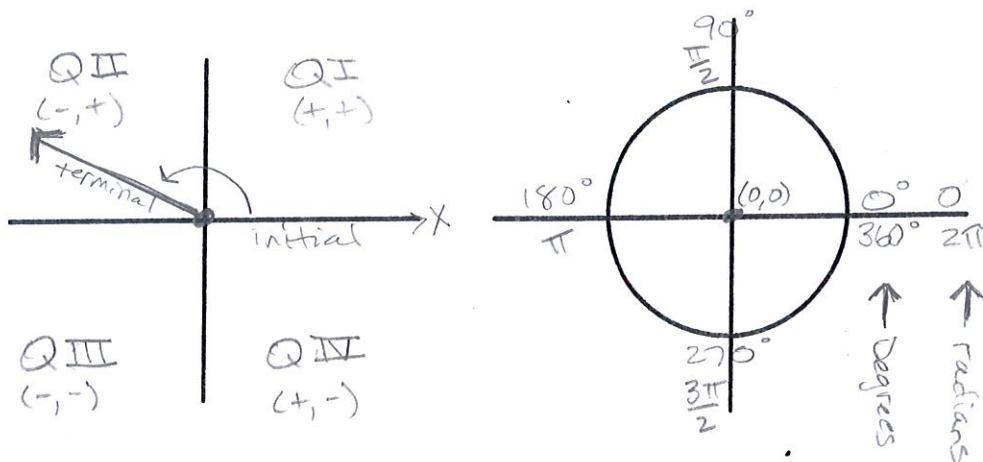
# All About ANGLES



formed by 2 rays

\* measured in degrees and radians

**Standard Position:** the vertex is at the origin  $(0,0)$  and the initial side lies on positive side of the x-axis.



## Initial & Terminal Sides:

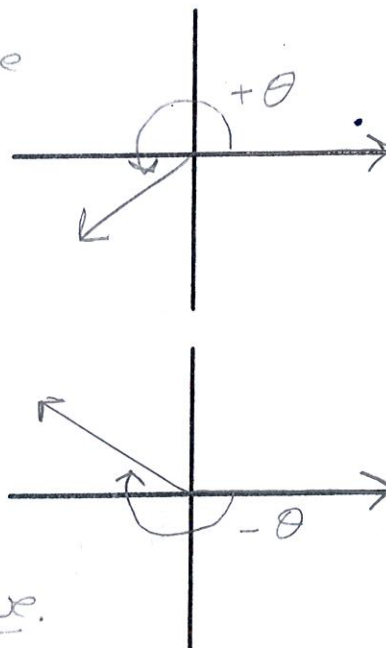
the initial is the starting side and the terminal is the ending side of an angle.

## Positive Angle:

an angle is positive when it rotates in a counter-clockwise direction.

## Negative Angle:

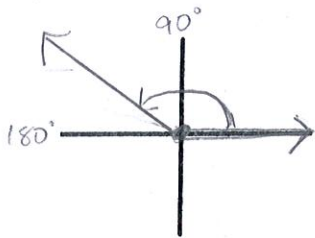
an angle that rotates in a clockwise direction is negative.



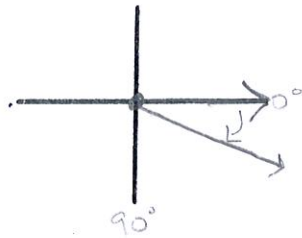
**Examples:**

1. Sketch the angles in standard position.

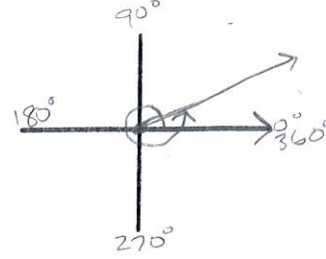
a)  $159^\circ$



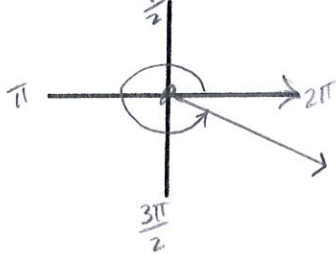
b)  $-29^\circ$



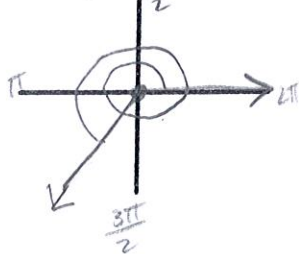
c)  $390^\circ$



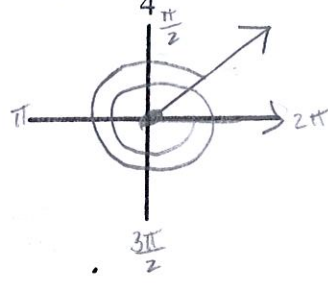
d)  $\frac{11\pi}{6} \approx 1.83\pi$



e)  $\frac{10\pi}{3} \approx 3.3\pi$



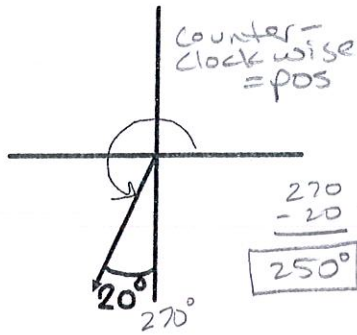
f)  $-\frac{15\pi}{4} = -3.75\pi$



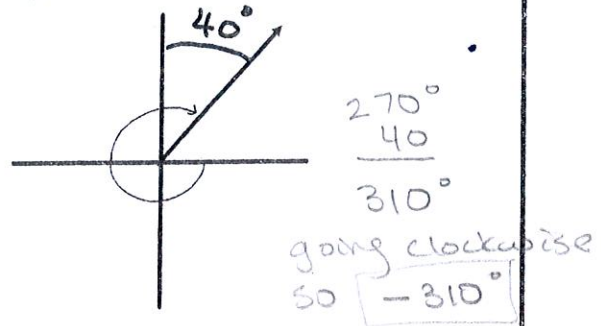
**Examples:**

2. Find the measure of each angle.

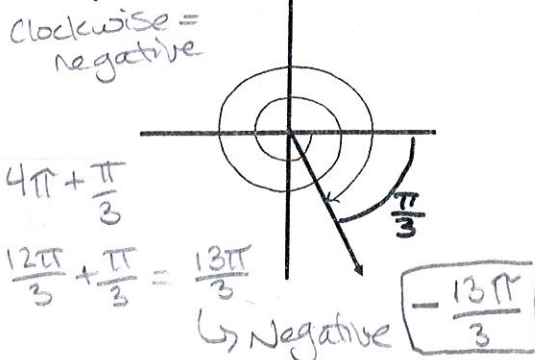
a)



b)



c)



d)

