

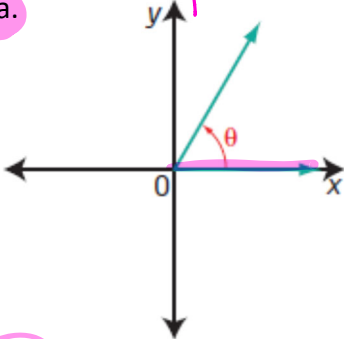
Name: _____

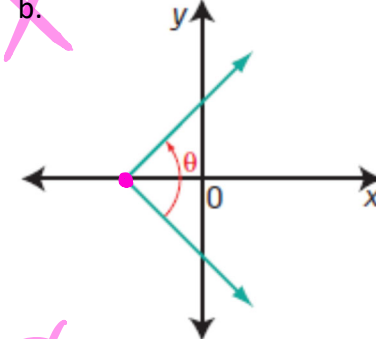
Date: _____

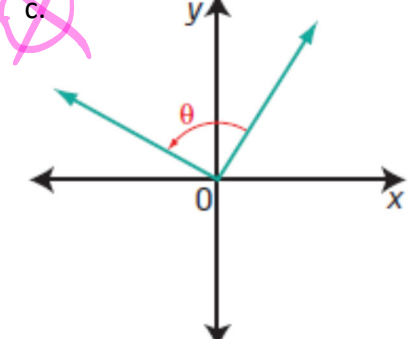
<p>Learning Goal 2.1</p>	<p>Using angles in standard position and relating them to special angle triangles, the unit circle, reference and co-terminal angles and the terminal arm.</p>
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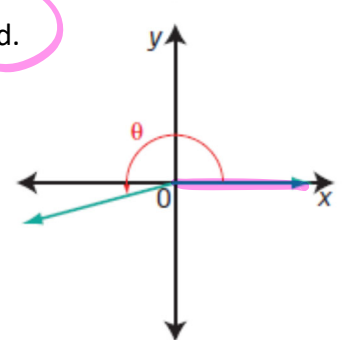
Sort the following graphics into 2 groups: Group 1 should have similar attributes, and Group 2 should not.

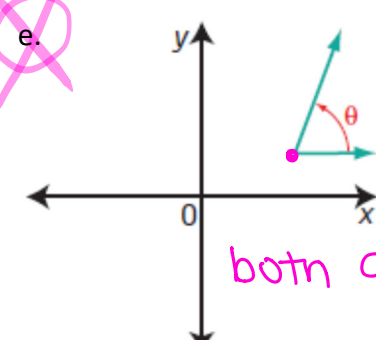
Group 1

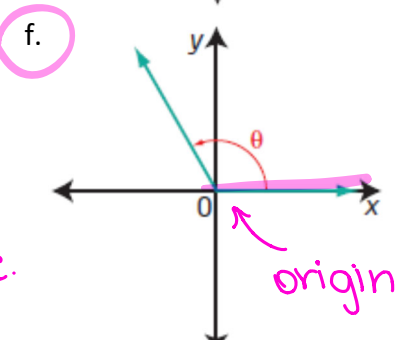
a. 

b. 

c. 

d. 

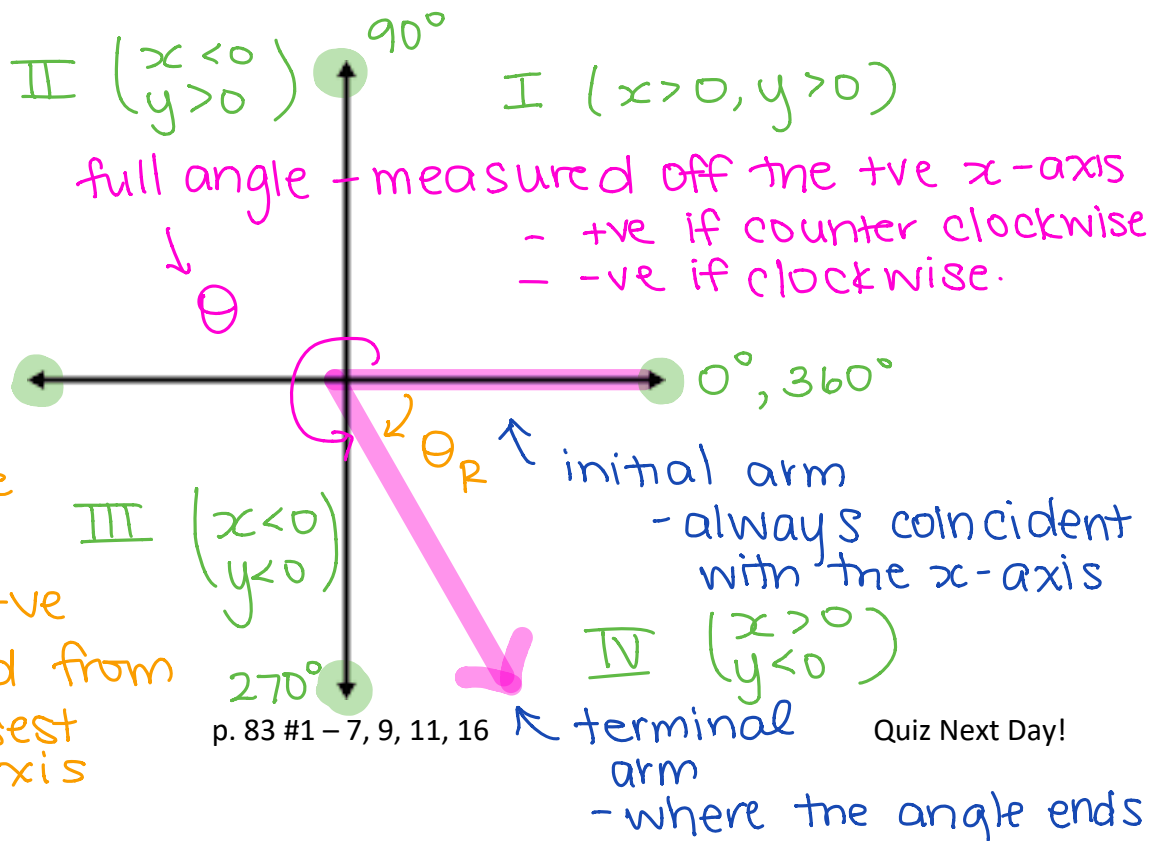
e. 

f. 

both acute.

origin

Angles in Standard Position

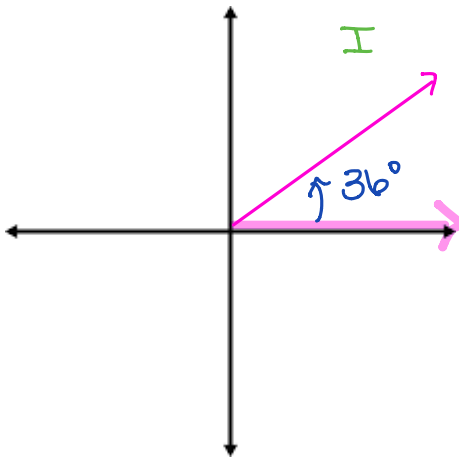


90°
 II ($x < 0, y > 0$)
 I ($x > 0, y > 0$)
 full angle - measured off the +ve x-axis
 - +ve if counter clockwise
 - -ve if clockwise.
 180°
 $0^\circ, 360^\circ$
 θ
 θ_R initial arm
 - always coincident with the x-axis
 III ($x < 0, y < 0$)
 IV ($x > 0, y < 0$)
 270°
 θ_R terminal arm
 - where the angle ends

θ_R - reference angle
 - always +ve
 - measured from the closest x-axis

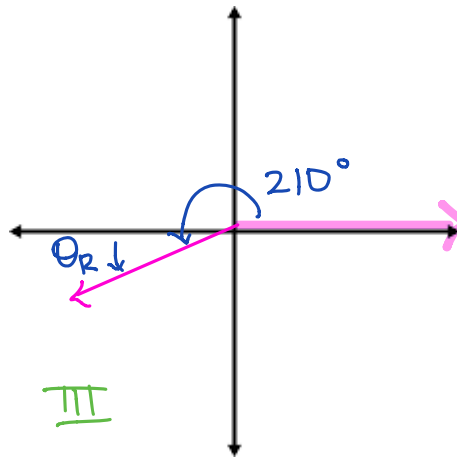
Example Sketch each angle in standard position. State the quadrant in which the terminal arm lies. Find the value of the reference angle.

a. 36°



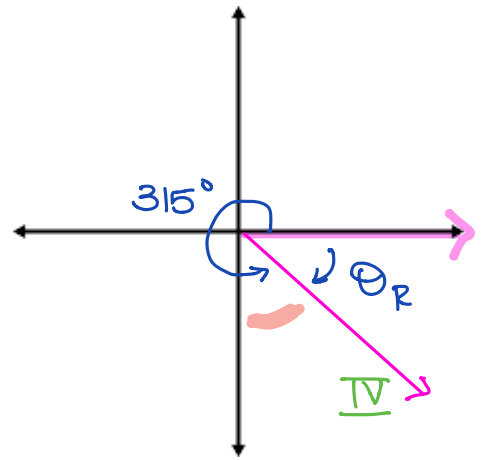
$$\begin{aligned} \theta_R &= \theta \text{ because we're in QI} \\ &= 36^\circ \\ &= 0^\circ + 36 \end{aligned}$$

b. 210°



$$\begin{aligned} \theta_R &= 210 - 180 \\ &= 30^\circ \end{aligned}$$

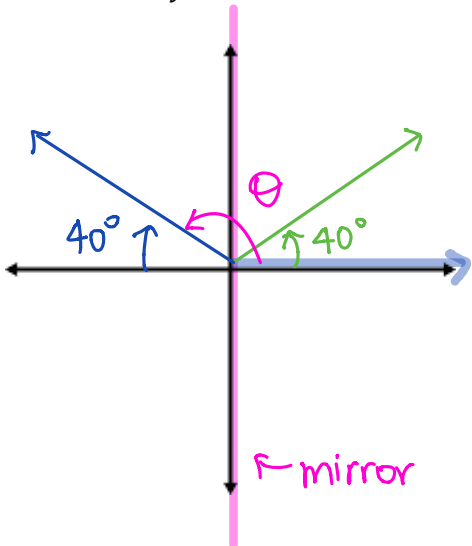
c. 315°



$$\begin{aligned} \theta_R &= 360 - 315 \\ &= 45^\circ \end{aligned}$$

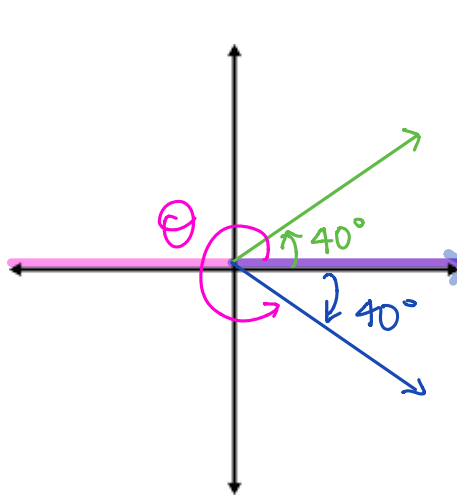
Example Determine the angle in standard position when an angle of 40° is reflected

a. over the y -axis



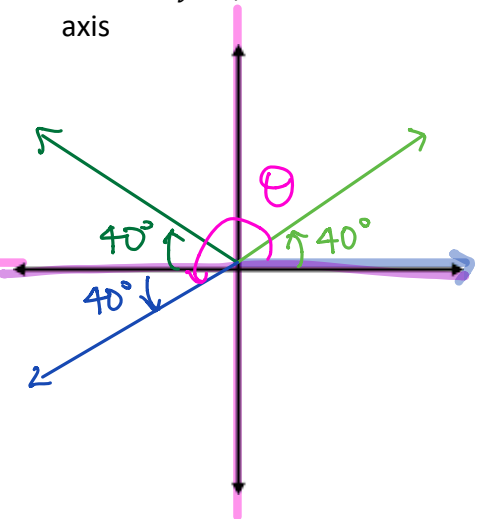
$$\begin{aligned} \theta_R &= 40^\circ \\ \theta &= 180 - 40 \\ &= 140^\circ \end{aligned}$$

b. over the x -axis



$$\begin{aligned} \theta_R &= 40^\circ \\ \theta &= 360 - 40 \\ &= 320^\circ \end{aligned}$$

c. over the y -axis, then the x -axis



$$\begin{aligned} \theta_R &= 40^\circ \\ \theta &= 180 + 40 \\ &= 220^\circ \end{aligned}$$