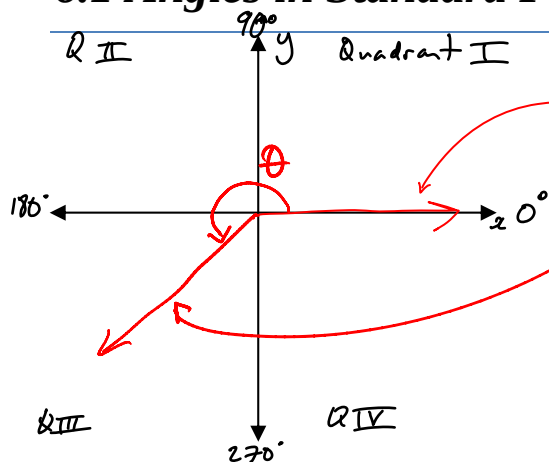


Unit 6: Standard Position Trigonometry

6.1 Angles in Standard Position



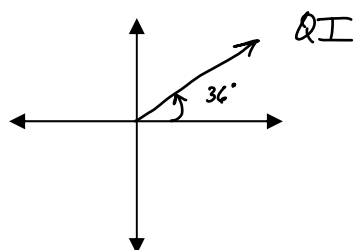
Initial Arm: The arm of an angle in standard position that lies on the positive x-axis

Terminal Arm: The arm of an angle in standard position that meets the initial arm at the origin

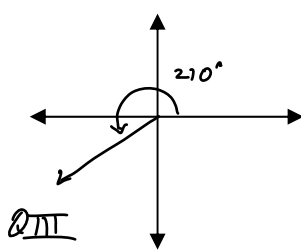
Standard Position: The position of an angle when its initial arm is on the positive x-axis and its vertex is at the origin

ex. Sketch each angle in standard position. State the quadrant in which the terminal arm lies.

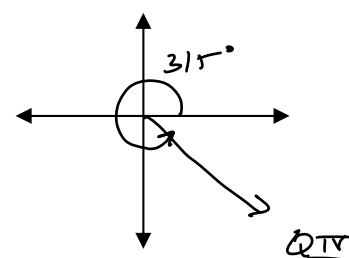
a) 36°



b) 210°



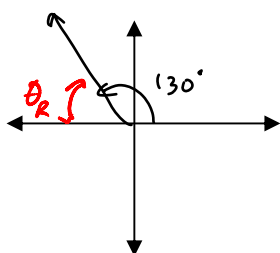
c) 315°



Reference Angle: The acute angle between the terminal arm and the x-axis!

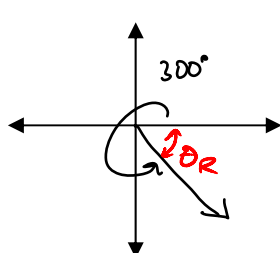
ex. Determine the reference angle θ_R for each angle θ . Sketch θ in standard position and label the reference angle θ_R .

a) 130°



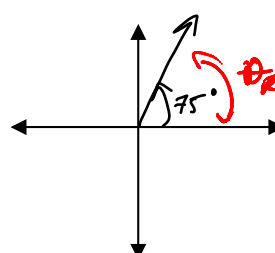
$$\begin{aligned} \theta_R &= 180 - \theta \\ &= 180 - 130 \\ \theta_R &= 50^\circ \end{aligned}$$

b) 300°



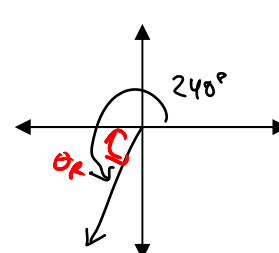
$$\begin{aligned} \theta_R &= 360 - \theta \\ &= 360 - 300 \\ \theta_R &= 60^\circ \end{aligned}$$

c) 75°



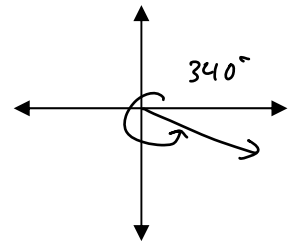
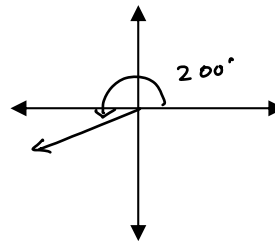
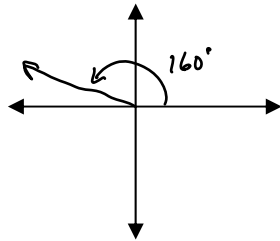
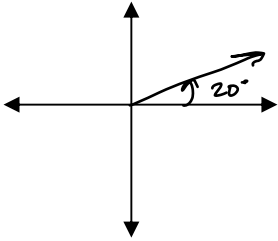
$$\begin{aligned} \theta_R &= \theta \\ \theta_R &= 75^\circ \end{aligned}$$

d) 240°



$$\begin{aligned} \theta_R &= \theta - 180^\circ \\ &= 240 - 180 \\ \theta_R &= 60^\circ \end{aligned}$$

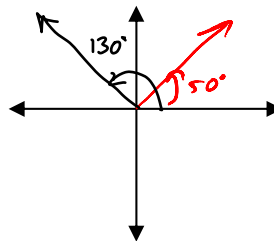
ex. Sketch four angles in standard position with a reference angle of 20° .



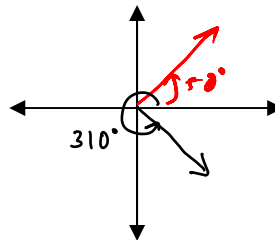
Angles in Standard Position and Reflections

ex. Sketch and determine the angle in standard position when an angle of $\theta = 50^\circ$ is reflected:

a) in the y -axis.



b) in the x -axis.



c) in the y -axis and then in the x axis.

