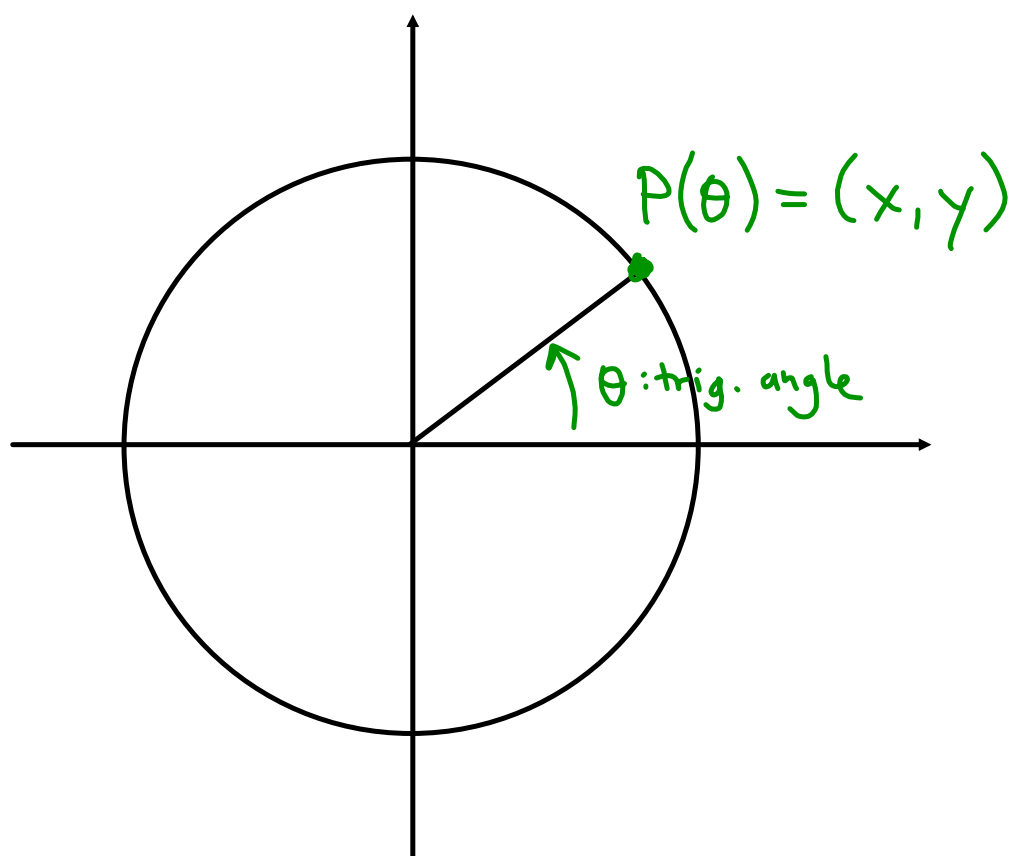


# Trigonometric Circle (Unit circle)

Goal:

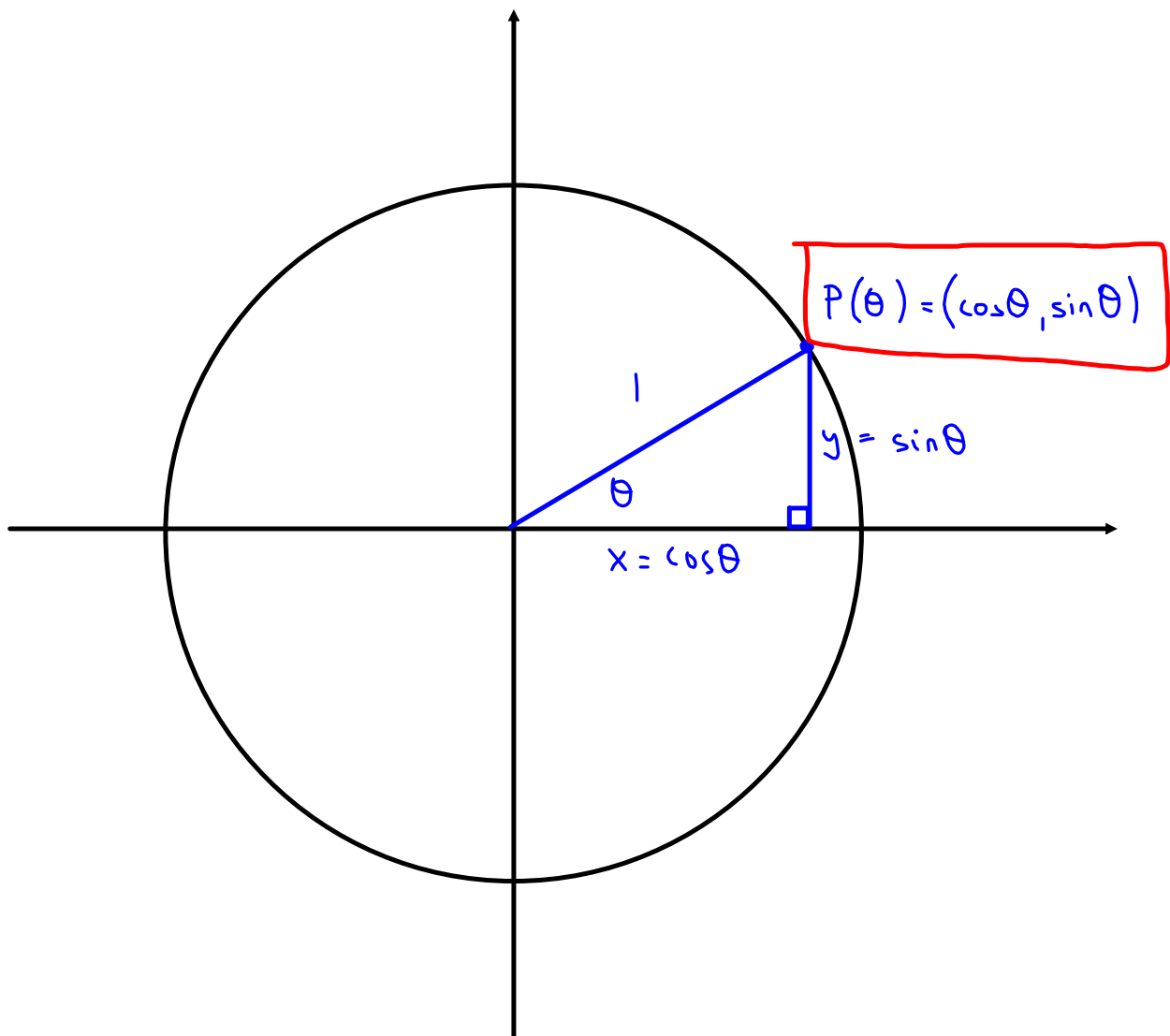
- to become familiar with the trigonometric circle
- to determine the exact coordinates of trigonometric points given an angle

The trigonometric circle is a circle centered at the origin with a radius of 1.



Any point on the trigonometric circle is called a trigonometric point and can be described by a trigonometric angle.

The coordinates of a trigonometric point can be found by using right triangles.



What is the x-coordinate of the trig point P(120°)?

$$\begin{aligned}x &= \cos 120^\circ \\ &= -0.5\end{aligned}$$

What is the y-coordinate of the trig point P(270°)?

$$\begin{aligned}y &= \sin 270^\circ \\ &= -1\end{aligned}$$

What is an angle of a trig point with a x-coordinate=0.866?

$$\begin{aligned}x &= \cos \theta \\ 0.866 &= \cos \theta\end{aligned}$$

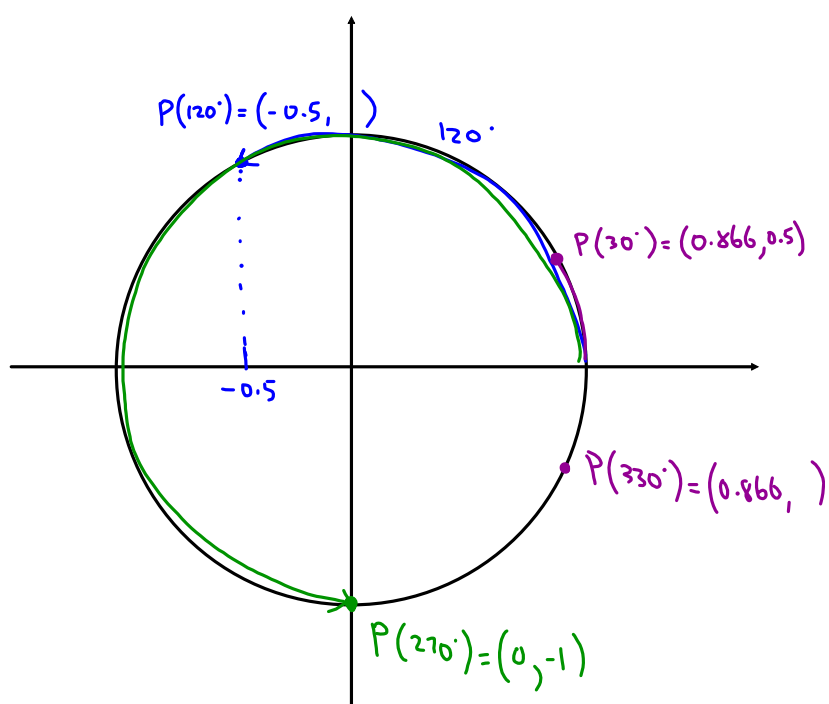
$$\theta = \cos^{-1}(0.866)$$

$$\theta = 30^\circ$$

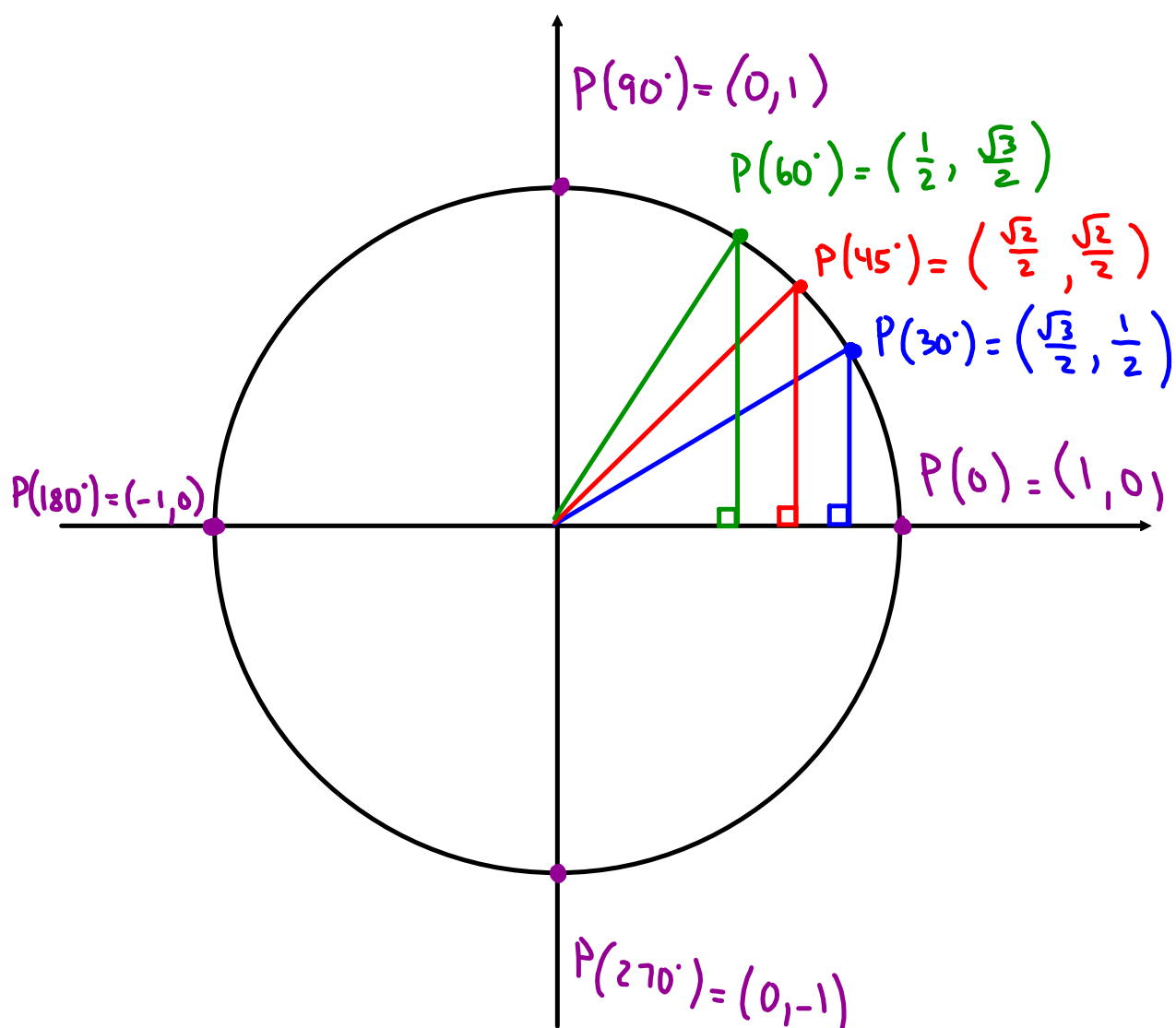
$$\begin{aligned}\text{also } 360^\circ - 30^\circ \\ &= 330^\circ\end{aligned}$$

$$\underline{\underline{+360n}}$$

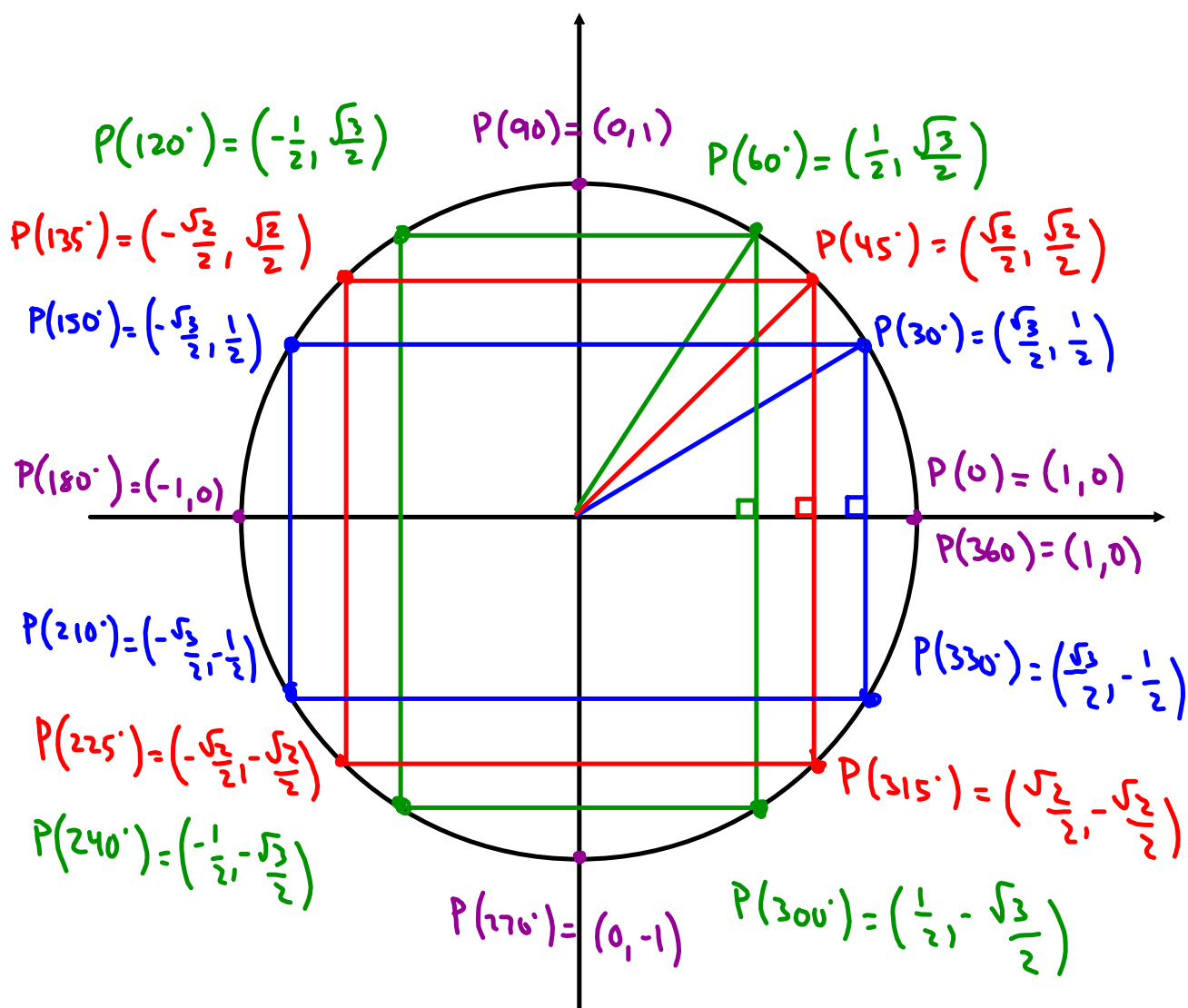
infinite angles since  
you can complete  
1 turn and be  
back in the same  
spot.



We are expected to know specific points on the trigonometric circle. These are all the points with angles that are multiples of 30 or 45 degrees.



The coordinates for the points in the other coordinates can be found through reflections about the x- and y-axis.



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