Name: _____ Date: _____

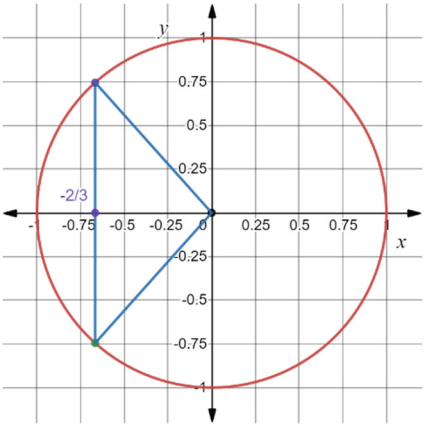
Learning Goal 4.1	Examining angles in standard position in both radians and degrees. Exploring the unit circle, reference and coterminal angles and special angles.

More Questions - Solutions

1. Find the co-ordinate(s) of all points on the unit circle that satisfy the conditions below. Include a diagram in your solution.

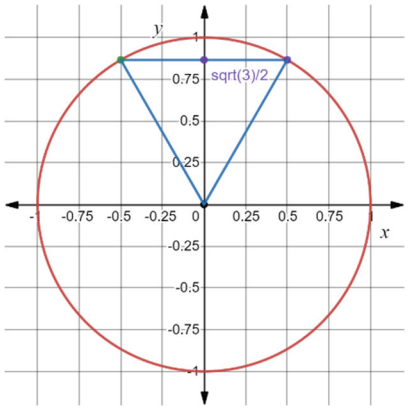
a. $x-$ coordinate of $-{}^{2}/_{3}$.

$$x^2 + y^2 = 1$$
$$\left(\frac{2}{3}\right)^2 + y^2 = 1$$
$$\frac{4}{9} + y^2 = 1$$
$$y^2 = \frac{5}{9}$$
$$y = \pm\frac{\sqrt{5}}{3}$$

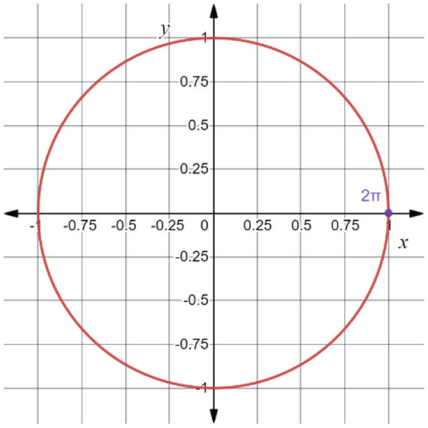


b. $y-$ coordinate of ${}^{\sqrt{3}}/_{2}$.

$$x^2 + y^2 = 1$$
$$x^2 + \left(\frac{\sqrt{3}}{2}\right)^2 = 1$$
$$x^2 + \frac{3}{4} = 1$$
$$x^2 = \frac{1}{4}$$
$$x = \pm\frac{1}{2}$$

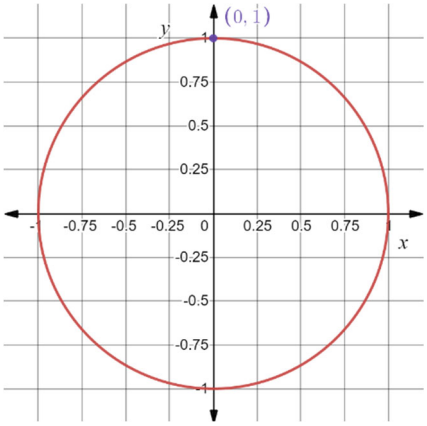


2. Evaluate $P(2\pi) = (x, y)$.



$P(2\pi) = (1, 0)$

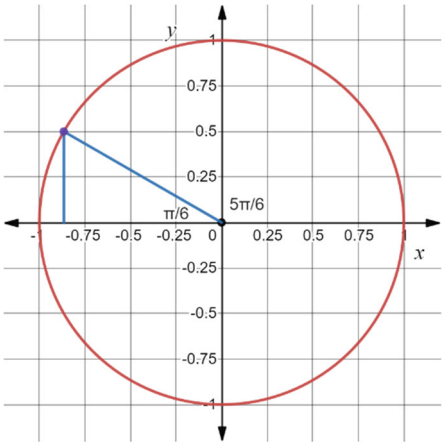
3. Given $P(\theta) = (0,1)$, find θ in radians.



$P\left(\frac{\pi}{2}\right) = (0, 1)$

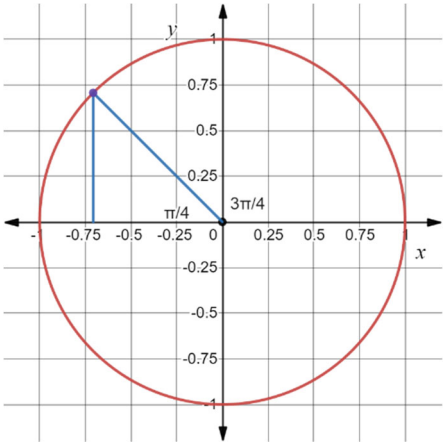
4. Evaluate.

a. $P\left(\frac{5\pi}{6}\right)$



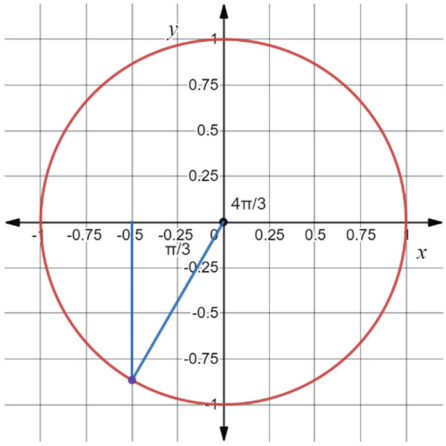
$$P\left(\frac{5\pi}{6}\right) = \left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$$

b. $P\left(\frac{3\pi}{4}\right)$



$$P\left(\frac{3\pi}{4}\right) = \left(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$$

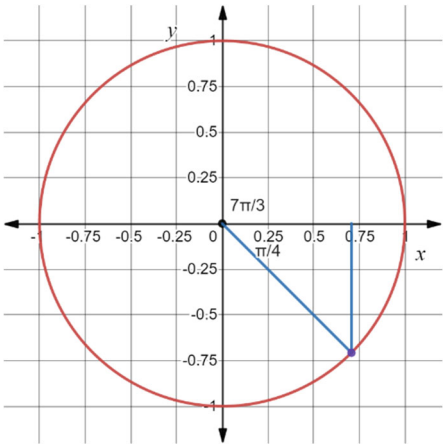
c. $P\left(\frac{4\pi}{3}\right)$



$$P\left(\frac{4\pi}{3}\right) = \left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$$

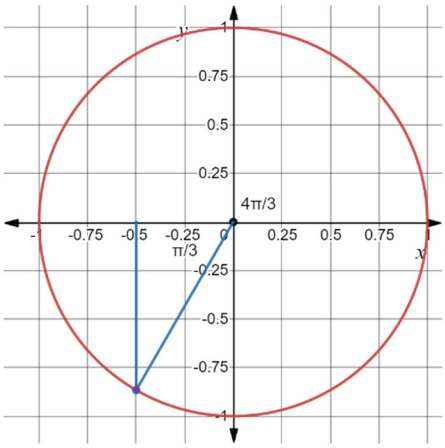
5. Identify the measure for the central angle θ in the interval $0 \leq \theta \leq 2\pi$ such that $P(\theta)$ is the given point.

a. $\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$



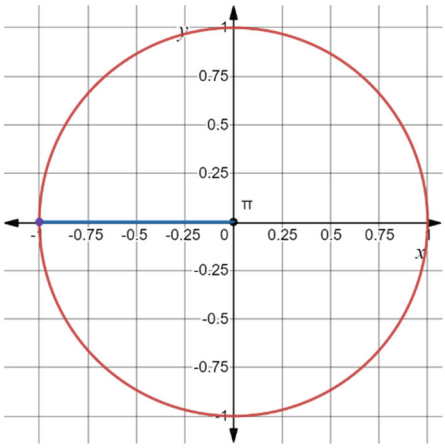
$$P\left(\frac{7\pi}{6}\right) = \left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$$

b. $\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$



$$P\left(\frac{4\pi}{3}\right) = \left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$$

c. $(-1,0)$



$$P(\pi) = (-1, 0)$$