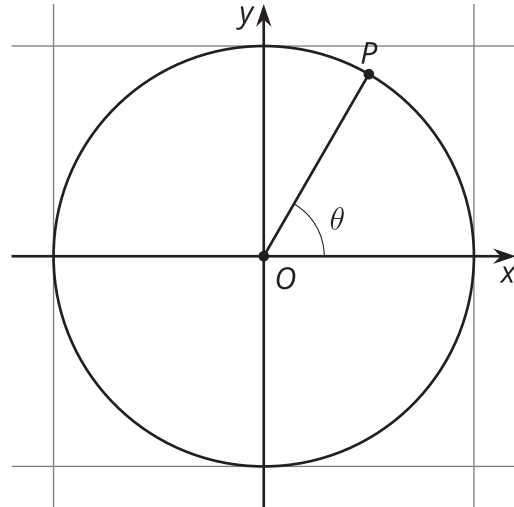# Unit 6 Lesson 5: The Pythagorean Identity (Part 1)

1 Circle Equations (Warm up)

Student Task Statement

Here is a circle centered at $(0, 0)$ with a radius of 1 unit.

What are the exact coordinates of P if P is rotated counterclockwise $\frac{\pi}{3}$ radians from the point $(1, 0)$? Explain or show your reasoning.

2 Cosine, Sine, and the Unit Circle

Student Task Statement

What are the exact coordinates of point Q if it is rotated $\frac{2\pi}{3}$ radians counterclockwise from the point $(1, 0)$? Explain or show your reasoning.
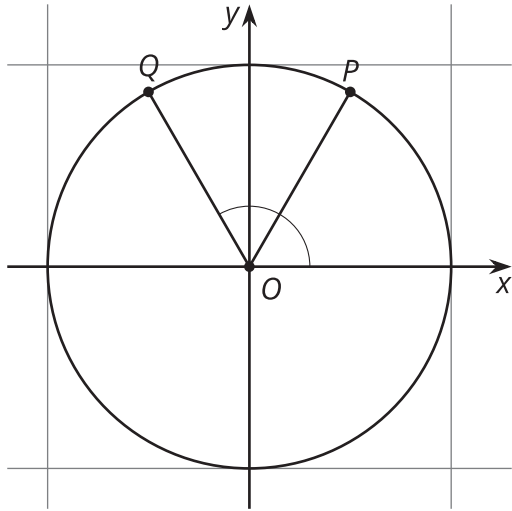
3 A New Identity

Student Task Statement

1. Is the point $\left(-0.5, \sin(\frac{4\pi}{3})\right)$ on the unit circle? Explain or show your reasoning.

2. Is the point $\left(-0.5, \sin(\frac{5\pi}{6})\right)$ on the unit circle? Explain or show your reasoning.

3. Suppose that $\sin(\theta) = -0.5$ and that θ is in quadrant 4. What is the exact value of $\cos(\theta)$? Explain or show your reasoning.

Images for Activity Synthesis