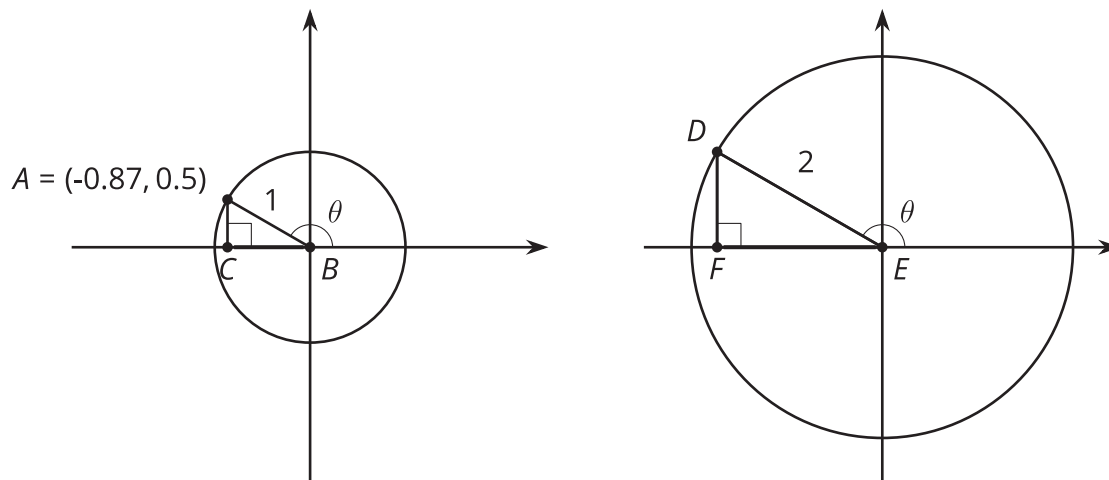# Unit 6 Lesson 7: Finding Unknown Coordinates on a Circle

1 Notice and Wonder: Big and Small (Warm up)
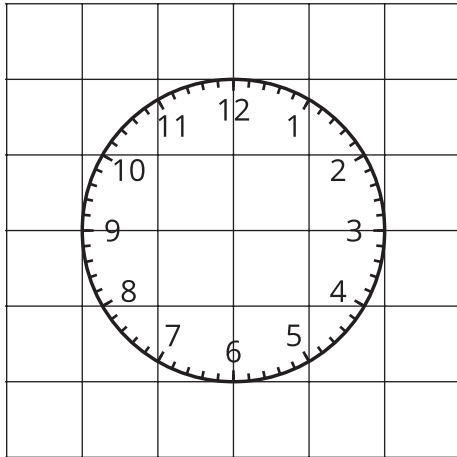
Student Task Statement

What do you notice? What do you wonder?

2 Clock Coordinates

Student Task Statement

Here is a clock face.

1. The length of the minute hand on a clock is 5 inches and the center of the clock is at $(0,0)$ on a coordinate plane. Determine the coordinates of the end of the minute hand at the following times. Explain or show your reasoning.
   - a. 45 minutes after the hour

   - b. 10 minutes after the hour

   - c. 40 minutes after the hour

2. The minute hand on another clock, also centered at $(0,0)$, has a length of 15 inches. Determine the coordinates of the end of the minute hand at the following times. Explain or show your reasoning.
   - a. 45 minutes after the hour

   - b. 10 minutes after the hour

   - c. 40 minutes after the hour

3. At a certain time, the end of the minute hand of a third clock centered at $(0,0)$ has coordinates approximately $(7.5, 7.5)$. How long is the minute hand of the clock if each grid square is one inch by one inch? Explain or show your reasoning.

3 Around a Ferris Wheel

Student Task Statement

The center of a Ferris wheel is 40 feet off of the ground, and the radius of the Ferris wheel is 30 feet. Point P is shown at 0 radians.
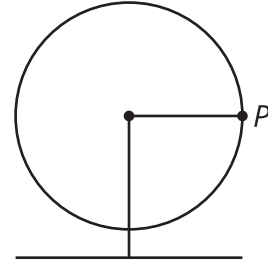
1. Calculate how high off the ground point P is as the Ferris wheel rotates counterclockwise starting from 0 radians.

    a. $\frac{\pi}{12}$ radians

    b. $\frac{\pi}{2}$ radians

    c. $\frac{5\pi}{6}$ radians

    d. $\frac{5\pi}{3}$ radians

2. As P goes around on the Ferris wheel, estimate which angle(s) of rotation put P 60 feet off the ground. Explain your reasoning.