## 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.
	1. 45 minutes after the hour
	2. 10 minutes after the hour
	3. 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.
	1. 45 minutes after the hour
	2. 10 minutes after the hour
	3. 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.
	1. $\frac{π}{12}$ radians
	2. $\frac{π}{2}$radians
	3. $\frac{5π}{6}$ radians
	4. $\frac{5π}{3}$ 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.



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