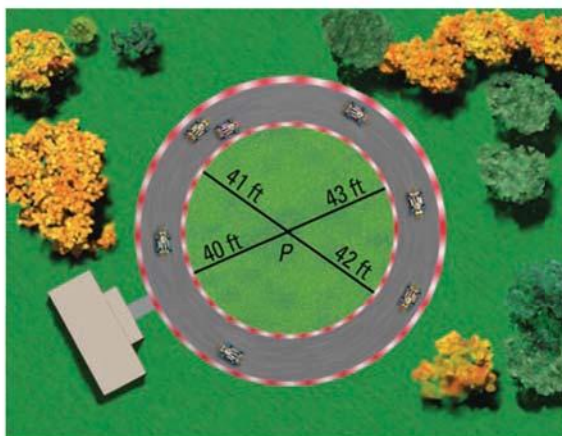


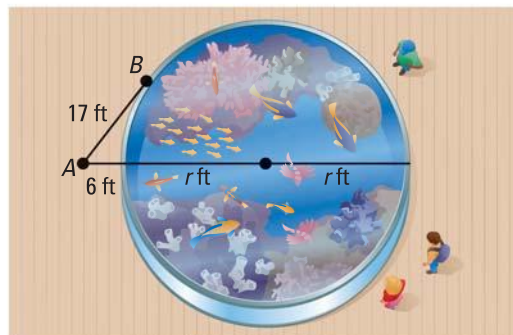


Lessons 10.6–10.7

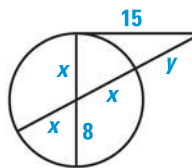
- SHORT RESPONSE** A local radio station can broadcast its signal 20 miles. The station is located at the point $(20, 30)$ where units are measured in miles.
 - Write an inequality that represents the area covered by the radio station.
 - Determine whether you can receive the radio station's signal when you are located at each of the following points: $E(25, 25)$, $F(10, 10)$, $G(20, 16)$, and $H(35, 30)$.
- EXTENDED RESPONSE** Cell phone towers are used to transmit calls. An area has cell phone towers at points $(2, 3)$, $(4, 5)$, and $(5, 3)$ where units are measured in miles. Each tower has a transmission radius of 2 miles.
 - Draw the area on a graph and locate the three cell phone towers. Are there any areas that can transmit calls using more than one tower?
 - Suppose you live at $(3, 5)$ and your friend lives at $(1, 7)$. Can you use your cell phone at either or both of your homes?
 - City A is located at $(-1, 1)$ and City B is located at $(4, 7)$. Each city has a radius of 5 miles. Which city has better coverage from the cell phone towers?
- SHORT RESPONSE** You are standing at point P inside a go-kart track. To determine if the track is a circle, you measure the distance to four points on the track, as shown in the diagram. What can you conclude about the shape of the track? *Explain.*



- SHORT RESPONSE** You are at point A, about 6 feet from a circular aquarium tank. The distance from you to a point of tangency on the tank is 17 feet.



- What is the radius of the tank?
 - Suppose you are standing 4 feet from another aquarium tank that has a diameter of 12 feet. How far, in feet, are you from a point of tangency?
- EXTENDED RESPONSE** You are given seismograph readings from three locations.
 - At $A(-2, 3)$, the epicenter is 4 miles away.
 - At $B(5, -1)$, the epicenter is 5 miles away.
 - At $C(2, 5)$, the epicenter is 2 miles away.
 - Graph circles centered at A, B, and C with radii of 4, 5, and 2 miles, respectively.
 - Locate the epicenter.
 - The earthquake could be felt up to 12 miles away. If you live at $(14, 16)$, could you feel the earthquake? *Explain.*
 - MULTI-STEP PROBLEM** Use the diagram.



- Use Theorem 10.16 and the quadratic formula to write an equation for y in terms of x .
- Find the value of x .
- Find the value of y .