NAME _____ DATE _____ PERIOD _____

Lesson 5 Problem-Solving Practice

Distance on the Coordinate Plane

1. An archaeologist at a dig sets up a coordinate system using string. Two similar artifacts are found—one at position (1, 4) and the other at (5, 2). How far apart were the two artifacts? Round to the nearest tenth of a unit if necessary.	**2.** Vega set up a coordinate system with units of feet to locate the position of the vegetables she planted in her garden. She has a tomato plant at (1, 3) and a pepper plant at (5, 6). How far apart are the two plants? Round to the nearest tenth if necessary.
3. April is an avid chess player. She sets up a coordinate system on her chess board so she can record the position of the pieces during a game. In a recent game, April noted that her king was at (4, 2) at the same time that her opponent's king was at (7, 8). How far apart were the two kings? Round to the nearest tenth of a unit if necessary.	**4.** Cory makes a map of his favorite park, using a coordinate system with units of yards. The old oak tree is at position (4, 8) and the granite boulder is at position (–3, 7). How far apart are the old oak tree and the granite boulder? Round to the nearest tenth if necessary
5. Taro uses a coordinate system with units of feet to keep track of the locations of any objects he finds with his metal detector. One lucky day he found a ring at (5, 7) and an old coin at (10, 19). How far apart were the ring and coin before Taro found them? Round to the nearest tenth if necessary.	**6.** The coordinates of points A and B are (–7, 5) and (4, –3), respectively. What is the distance between the points, rounded to the nearest tenth?
7. The coordinates of points A, B, and C are (5, 4), (–2, 1), and (4, –4), respectively. Which point, B or C, is closer to point A?	**8.** Bryce is looking at a map of a theme park. The map is laid out in a coordinate system. Bryce is at (2, 3). The roller coaster is at (7, 8), and the water ride is at (9, 1). Is Bryce closer to the roller coaster or the water ride?

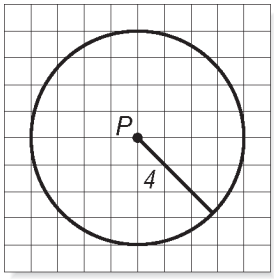
NAME _____ DATE _____ PERIOD _____

Enrich

Circles on the Coordinate Plane

A **circle** is defined as *the set of all points in a plane that lie a given distance from a fixed point*.

This is a sketch of the set of all points a distance of 4 units from point *P*.



Use your knowledge of distance on the coordinate plane to answer the following questions about circles.

9. The distance from the center of a circle to any point on the circle is called the _____.

10. The diameter of a circle has endpoints (–1, 2) and (9, –4). Determine the y-coordinate of the center of the circle.

11. The diameter of a circle has endpoints (2, 3) and (10, 6). Determine the length of the radius. Round to the nearest hundredth.

12. A diagram of a circular gear is shown on the coordinate plane. Point *C* is the center of the gear and has coordinates (5, 4). Point *D* is on the pedal crank shaft and has coordinates (7, 4). After the crank has completed $\frac{3}{8}$ of a rotation, the crank shaft will be located at point *E*. Determine the distance between points *D* and *E*. Round to the nearest tenth.