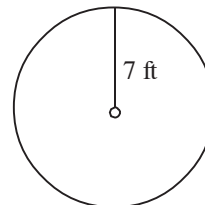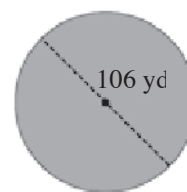## Practice 11-3

Area of a Circle

1. Find the area of the circle. Use 3.14 for π. Round to the nearest hundredth as needed.
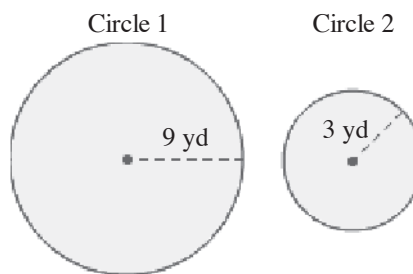
7 ft

2. A water sprinkler sends water out in a circular pattern. How large is the watered area if the radius of the watering pattern is 18 ft? Write an exact answer in terms of π. Simplify your answer.
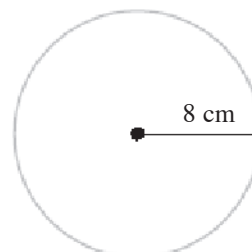
3. Find the area of the circle. Use 3.14 for π. Round to the nearest hundredth as needed.
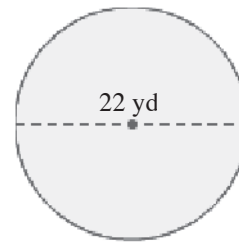
106 yd

4. A certain coin is a circle with diameter 18 mm. What is the exact area of each side of the coin? Simplify your answer.

5. The radius of a circular sign is 12 inches. Equal parts of the sign are painted red and yellow. How many square inches are painted each color? Use 3.14 for π. Round to the nearest hundredth as needed.

6. How many times greater is the area of Circle 1 than the area of Circle 2?

Circle 1   Circle 2

9 yd   3 yd

7. a) **Writing** The diameter of Circle X is 18 cm. The diameter of Circle Y is 31 cm. Which circle has the greater area and by how much? Use 3.14 for π.

   b) Describe two ways you can compare the areas of two circles. Explain when you might prefer to use each.

8. a) **Reasoning** Find the exact area of the circle in terms of π. Simplify your answer.

   b) Explain how you could use the area of a parallelogram to estimate the area of the circle.

8 cm

9. **Error Analysis** For homework last night, Shira needed to find the area of this circle using 3.14 for π. She incorrectly claimed the area was 1,519.76 yd². Round to the nearest hundredth as needed.

22 yd

a) Find the correct area of the circle.

b) What error did Shira likely make?
   ○ A. She did not square the radius.
   ○ B. She used 22 yd instead of 11 yd for the radius.
   ○ C. She used 11 yd instead of 22 yd for the radius.
   ○ D. She used 3 instead of 3.14 for π.

10. **Gardening** Sandra just finished planting celery, carrots, radishes, cabbage, and spinach in her new garden. The garden is a circle whose diameter is 50 yards. If she planted equal regions of each vegetable, what is the area of Sandra's garden that has carrots? Use 3.14 for π. Round to the nearest hundredth as needed.

11. **Estimation** A machine drills a hole into a sheet of aluminum. The radius of the hole is exactly 2.34 in.
   a) Round the radius to the nearest inch to estimate the area of the hole. Use 3.14 for π. Round to the nearest hundredth as needed.

   b) Find the area of the hole using the exact radius.

12. A radio station broadcasts from the top of a mountain. The signal can be heard up to 112 miles away in every direction.
   a) How many square miles are in the receiving range of the radio station? Simplify your answer.

   b) Explain two ways to find this area in square kilometers.

13. The diameter of a circular stained glass window is 10 feet and 6 inches.
   a) What is the area of the window in square feet? Use 3.14 for π. Round to the nearest hundredth as needed.

   b) What is the area of the window in square inches?

14. **Challenge** Sarah bought a circular marble tabletop to use as her dining room table. It is 6 feet in diameter and costs $81 per square yard.
   a) Find the cost of the tabletop. Use 3.14 for π. Round to the nearest cent as needed.

   b) What is the area of the smallest square tablecloth that would completely cover the table?

15. **Challenge** The radius of Circle A is 6 mm. The radius of Circle B is 3 mm greater than the radius of Circle A. The radius of Circle C is 5 mm greater than the radius of Circle B. The radius of Circle D is 3 mm less than the radius of Circle C.
   a) What is the area of each circle? Simplify your answer.

   b) How many times greater than the area of Circle A is the area of Circle D? Round to the nearest tenth as needed.