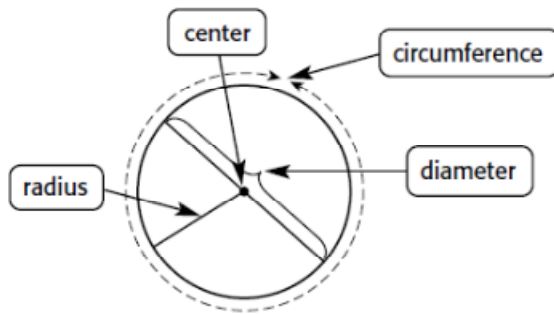## 11-3 Study Guide and Intervention

Circles and Circumference

A **circle** is the set of all points in a plane that are the same distance from a given point, called the **center**. The **diameter** d is the distance across the circle through its center. The **radius** r is the distance from the center to any point on the circle. The **circumference** C is the distance around the circle. The circumference C of a circle is equal to its diameter d times π, or 2 times its radius r times π.

Example 1 Find the circumference of a circle with a diameter of 7.5 centimeters.

$C = \pi d$ Circumference of a circle.

$C \approx 3.14 \times 7.5$ Replace π with 3.14 and d with 7.5.

$C \approx 23.55$ The circumference of the circle is about 23.55 centimeters.

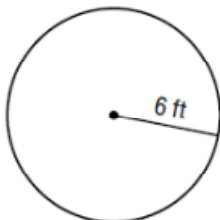**Example 2** If the radius of a circle is 14 inches, what is its circumference?

$C = 2\pi r$

$C \approx 2 \times 3.14 \times 14$ Replace π with 3.14 and r with 14.

$C \approx 87.92$ The circumference of the circle is about 87.92 inches.
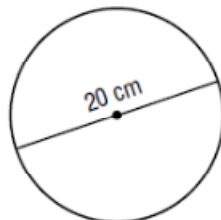
Exercises

Find the circumference of each circle. Use 3.14 or $\dfrac{22}{7}$ for π. Round to the nearest tenth if necessary.
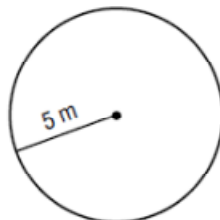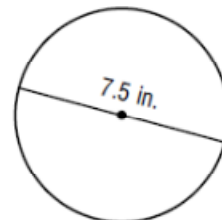
1.

6 ft

37.7 ft

2.

20 cm

62.8 cm

3.

5 m

31.4 m

4.

7.5 in.

23.6 in.

5. diameter = 15 km
47.1 km

6. radius = 21 mi
131.9 mi

7. radius = 50 m
314 m

8. diameter = 600 ft
1,884 ft

9. radius = 62 mm
389.4 mm

10. diameter = 7 km
22.0 km

11. radius = 95 in.
596.6 in.

12. diameter = 6.3 m
19.8 m

13. diameter = $5\frac{1}{4}$ cm
16.5 cm

Lesson 11-3