LESSON 8.7

NAME _____ DATE _____

Reteaching with Practice

For use with pages 451–459

GOAL **Find the circumference and area of circles.**

VOCABULARY

A **circle** is the set of all points in a plane that are the same distance from a given point, called the **center** of the circle. The distance from the center to a point on the circle is the **radius**.

The distance across the circle, through the center, is the **diameter**.

The **circumference** of a circle is the distance around the circle.

An angle whose vertex is the center of a circle is a **central angle** of the circle.

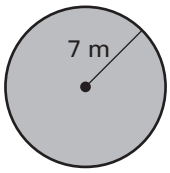
A region of a circle determined by two radii and a part of the circle is called a **sector** of the circle.

Circumference of a Circle: $\text{Circumference} = \pi(\text{diameter})$
$= 2\pi(\text{radius})$

Area of a Circle: $\text{Area} = \pi(\text{radius})^2$

EXAMPLE 1 ***Find the Circumference of a Circle***

Find the circumference of the circle.



SOLUTION

Use the formula for the circumference of a circle and substitute 7 for r.

$C = 2\pi r$	Formula for the circumference of a circle
$= 2\pi(7)$	Substitute 7 for r.
$= 14\pi$	Simplify.
$\approx 14(3.14)$	Use 3.14 as an approximation for π.
$= 43.96$	Multiply.

Answer: The circumference of the circle is about 44 meters.

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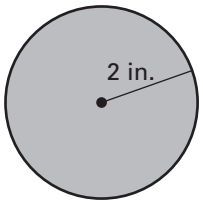
Exercises for Example 1

Find the circumference of the circle. Round your answer to the nearest whole number.

1.



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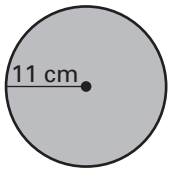

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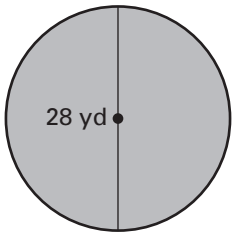
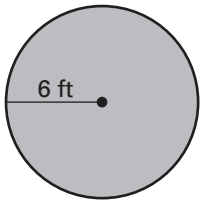


EXAMPLE 2 Find the Area of the Circle

Find the area of a circle with a radius of 6 feet.



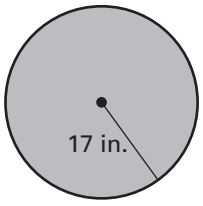
SOLUTION

$A = \pi r^2$	Formula for the area of a circle
$= \pi(6)^2$	Substitute 6 for r.
$= \pi \cdot (36)$	Simplify.
$\approx (3.14) \cdot (36)$	Use 3.14 as an approximation for π.
$\approx 113 \text{ ft}^2$	Multiply.

Exercises for Example 2

Find the area of the circle. Round your answer to the nearest whole number.

4.



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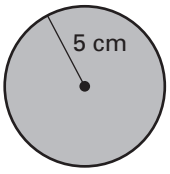

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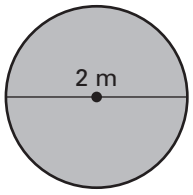

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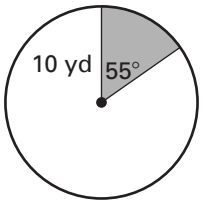
EXAMPLE 3 Find the Area of a Sector

Find the area of the shaded sector.



SOLUTION

First find the area of the circle.

$$A = \pi r^2 = \pi(10)^2 \approx 314 \text{ yd}^2$$

Now find the area of the sector. Let x equal the area of the sector.

$$\frac{\text{Area of sector}}{\text{Area of entire circle}} = \frac{\text{Measure of central angle}}{\text{Measure of entire circle}}$$

$$\frac{x}{314} = \frac{55^\circ}{360^\circ} \quad \text{Substitute.}$$

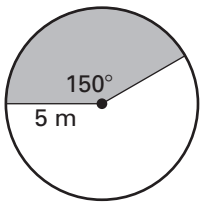
$$360x = 17{,}270 \quad \text{Cross product property}$$

$$x \approx 48 \text{ yd}^2 \quad \text{Divide each side by 360.}$$

Exercises for Example 3

Find the area of the shaded sector. Round your answer to the nearest whole number.

7.



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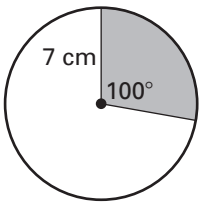

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