



## SKILL 13: Pi and Circumference

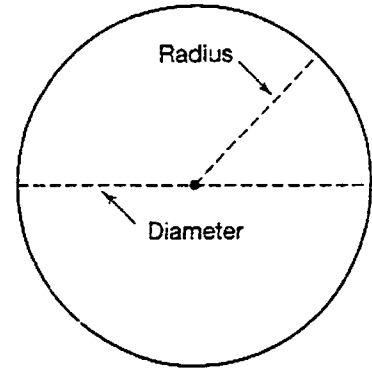
There are three measurements of a circle that can be used to describe its size. The **diameter** of a circle is the distance across the circle through its center. The **radius** is the distance from the center to any point on the circle. The perimeter of a circle is its **circumference**.

The diameter of a circle is twice its radius:  $d = 2 \times r$ .

The circumference of a circle is given by

$$C = \pi \times d = 2 \times \pi \times r.$$

The value for  $\pi$  is approximately equal to 3.14, or  $\frac{22}{7}$ .



### Example

Find the diameter and circumference of the circle. Use 3.14 for  $\pi$ .

The radius of the circle is 3 m.

The diameter is equal to two times the radius, so the diameter is  $2 \times 3$ , or 6 m.

Use the formula to find the circumference.  $C = 2 \times \pi \times r$

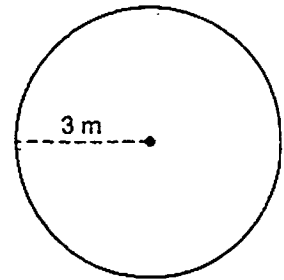
Substitute.

$$\approx 2 \times 3.14 \times 3$$

Multiply.

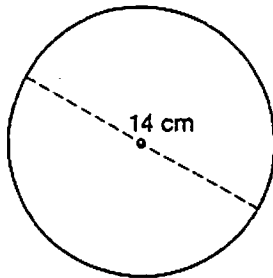
$$\approx 18.84$$

The diameter of the circle is 6 m. The circumference is about 18.84 m.



### Guided Practice

Find the radius and circumference of the circle.



1. a. What is the diameter? \_\_\_\_\_

b. What is the radius? \_\_\_\_\_

c. Substitute for the diameter and  $\pi$  in the formula

$$C = \pi \times d. \text{ Use } \frac{22}{7} \text{ for } \pi. \text{ _____}$$

d. What is the circumference? \_\_\_\_\_

Find the diameter and radius of a circle with a circumference of 28.26 ft.

2. a. Substitute for the circumference and  $\pi$  in the formula  $C = \pi \times d$ .

$$C = 28.26 \text{ ft. Use } 3.14 \text{ for } \pi. \text{ _____}$$

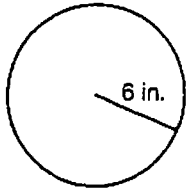
b. What is the diameter? \_\_\_\_\_

c. What is the radius? \_\_\_\_\_

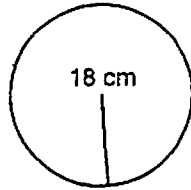
**SKILL 13: Practice**

Find the circumference of each circle given its diameter or radius. Use 3.14 for  $\pi$ .

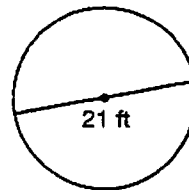
1.



2.

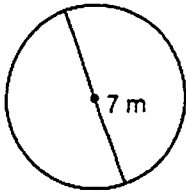


3.

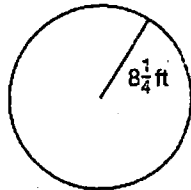


Find the circumference of each circle given its diameter or radius. Use  $\pi \approx \frac{22}{7}$ . Express answers in lowest terms.

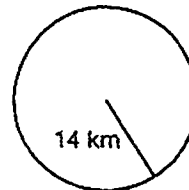
4.



5.



6.



Given the radius, diameter, or circumference of a circle, find the other two measurements. Use  $\pi \approx 3.14$ . Round answers to the nearest tenth.

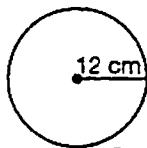
- |                   |                     |                   |                   |
|-------------------|---------------------|-------------------|-------------------|
| 7. $r =$ _____    | 8. $r =$ _____      | 9. $r = 9$ mm     | 10. $r =$ _____   |
| $d = 44$ cm       | $d =$ _____         | $d =$ _____       | $d = 6.8$ mi      |
| $C \approx$ _____ | $C \approx 4\pi$ cm | $C \approx$ _____ | $C \approx$ _____ |

**Solve.**

11. The radius of Pluto is about 1,145 km.  
Find the length of Pluto's equator. \_\_\_\_\_
12. The diameter of a circular track at the park is 25 meters.  
Haley ran around the track one time. How far did she run? \_\_\_\_\_

**TEST PREP**

13. What is the circumference of the circle?  
Use 3.14 for  $\pi$ .



Skill 13

- |            |            |
|------------|------------|
| A 18.84 cm | C 56.52 cm |
| B 37.68 cm | D 75.36 cm |

14. Eric makes two triangular bandannas from a square piece of fabric that is 18 in. on each side. What will be the area of each bandanna?

Skill 9

- |                      |                       |
|----------------------|-----------------------|
| F 36 in <sup>2</sup> | H 162 in <sup>2</sup> |
| G 81 in <sup>2</sup> | J 324 in <sup>2</sup> |