

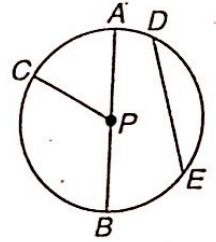
**10-1**

**Skills Practice**

*Student Copy*

**Circles and Circumference**

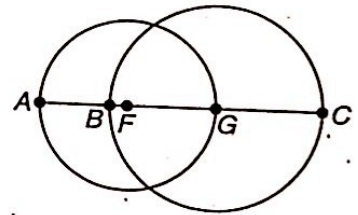
For Exercises 1–5, refer to the circle at the right.



1. Name the circle.
2. Name a radius.
3. Name a chord.
4. Name a diameter.
5. Name a radius not drawn as part of a diameter.
6. Suppose the diameter of the circle is 16 centimeters. Find the radius.
7. If  $PC = 11$  inches, find  $AB$ .

The diameters of  $\odot F$  and  $\odot G$  are 5 and 6 units, respectively. Find each measure.

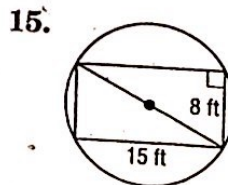
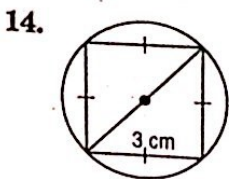
8.  $BF$
9.  $AB$



The radius, diameter, or circumference of a circle is given. Find the missing measures to the nearest hundredth.

10.  $r = 8$  cm  
 $d = \underline{\hspace{2cm}}$ ,  $C \approx \underline{\hspace{2cm}}$
11.  $r = 13$  ft  
 $d = \underline{\hspace{2cm}}$ ,  $C \approx \underline{\hspace{2cm}}$
12.  $d = 9$  m  
 $r = \underline{\hspace{2cm}}$ ,  $C \approx \underline{\hspace{2cm}}$
13.  $C = 35.7$  in.  
 $d \approx \underline{\hspace{2cm}}$ ,  $r \approx \underline{\hspace{2cm}}$

Find the exact circumference of each circle.



# 10-1 Skills Practice

## Circles and Circumference

For Exercises 1–5, refer to the circle at the right.



1. Name the circle.

$\odot P$

2. Name a radius,

$\overline{PA}$ ,  $\overline{PB}$ , or  $\overline{PC}$

3. Name a chord.

$\overline{AB}$  or  $\overline{DE}$

4. Name a diameter,

$\overline{AB}$

5. Name a radius not drawn as part of a diameter,

$\overline{PC}$

6. Suppose the diameter of the circle is 16 centimeters. Find the radius,

8 cm

7. If  $PC = 11$  inches, find  $AB$ .

22 in.

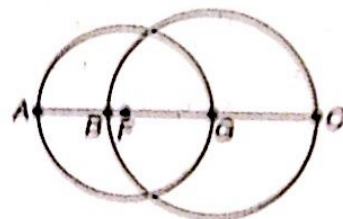
The diameters of  $\odot F$  and  $\odot G$  are 5 and 6 units, respectively. Find each measure.

8.  $BF$

0.5

9.  $AB$

2



The radius, diameter, or circumference of a circle is given. Find the missing measures to the nearest hundredth.

10.  $r = 8$  cm

$d = \underline{16 \text{ cm}}$ ,  $C \approx \underline{50.27 \text{ cm}}$

11.  $r = 13$  ft

$d = \underline{26 \text{ ft}}$ ,  $C \approx \underline{81.68 \text{ ft}}$

12.  $d = 9$  m

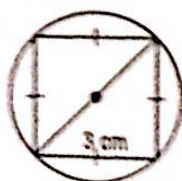
$r = \underline{4.5 \text{ m}}$ ,  $C \approx \underline{28.27 \text{ m}}$

13.  $C = 35.7$  in.

$d \approx \underline{11.36 \text{ in.}}$ ,  $r \approx \underline{5.68 \text{ in.}}$

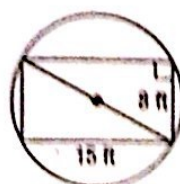
Find the exact circumference of each circle.

14.



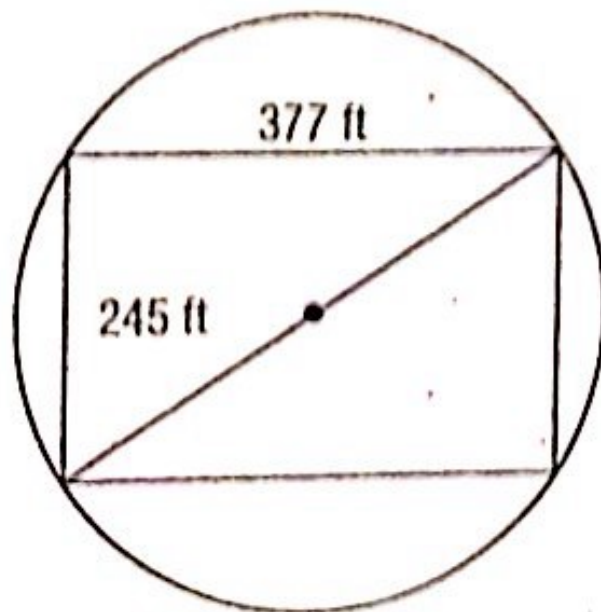
$3\pi\sqrt{2}$  cm

15.



$17\pi$  ft

point on the fence through the center of the circle to another point on the fence.



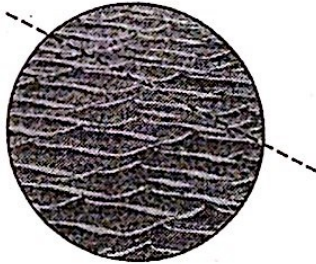
Based on the information in the figure, what is the diameter of the fence? Round your answer to the nearest tenth of a foot.

**10-1 Word Problem Practice****Circles and Circumference**

1. **WHEELS** Zack is designing wheels for a concept car. The diameter of the wheel is 18 inches. Zack wants to make spokes in the wheel that run from the center of the wheel to the rim. In other words, each spoke is a radius of the wheel. How long are these spokes?

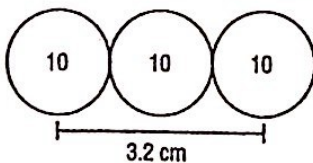
9 in.

2. **CAKE CUTTING** Kathy slices through a circular cake. The cake has a diameter of 14 inches. The slice that Kathy made is straight and has a length of 11 inches.



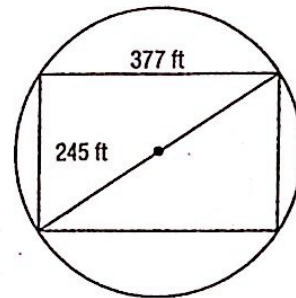
Did Kathy cut along a *radius*, a *diameter*, or a *chord* of the circle?  
chord

3. **COINS** Three identical circular coins are lined up in a row as shown.



The distance between the centers of the first and third coins is 3.2 centimeters. What is the radius of one of these coins?  
0.8 cm

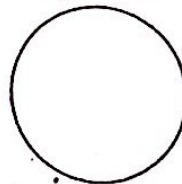
4. **PLAZAS** A rectangular plaza has a surrounding circular fence. The diagonals of the rectangle pass from one point on the fence through the center of the circle to another point on the fence.



Based on the information in the figure, what is the diameter of the fence? Round your answer to the nearest tenth of a foot.  
449.6 ft

**EXERCISE HOOPS** For Exercises 5 and 6, use the following information.

Taiga wants to make a circular loop that he can twirl around his body for exercise. He will use a tube that is 2.5 meters long.



5. What will be the diameter of Taiga's exercise hoop? Round your answer to the nearest thousandth of a meter.  
0.796 m
6. What will be the radius of Taiga's exercise hoop? Round your answer to the nearest thousandth of a meter.  
0.398 m

# 10-2 Practice Student Copy

## Measuring Angles and Arcs

**ALGEBRA** In  $\odot Q$ ,  $\overline{AC}$  and  $\overline{BD}$  are diameters. Find each measure.

1.  $m\angle AQE$

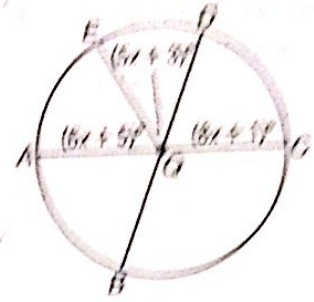
2.  $m\angle DQE$

3.  $m\angle CQD$

4.  $m\angle BQC$

5.  $m\angle CQE$

6.  $m\angle AQD$



In  $\odot P$ ,  $m\angle GPH = 38$ . Find each measure.

7.  $m\overline{EF}$

8.  $m\overline{DE}$

9.  $m\overline{FG}$

10.  $m\overline{DHG}$

11.  $m\overline{DFG}$

12.  $m\overline{DGE}$



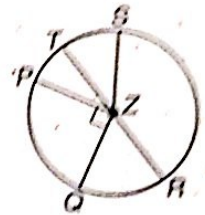
The radius of  $\odot Z$  is 13.5 units long. Find the length of each arc for the given angle measure.

13.  $\overline{QPT}$  if  $m\angle QZT = 120$

14.  $\overline{QR}$  if  $m\angle QZR = 60$

15.  $\overline{PQR}$  if  $m\angle PZR = 150$

16.  $\overline{QPS}$  if  $m\angle QZS = 160$



**HOMEWORK** For Exercises 17 and 18, refer to the table, which shows the number of hours students at Leland High School say they spend on homework each night.

17. If you were to construct a circle graph of the data, how many degrees would be allotted to each category?

| Homework         |     |
|------------------|-----|
| Less than 1 hour | 8%  |
| 1-2 hours        | 29% |
| 2-3 hours        | 58% |
| 3-4 hours        | 3%  |
| Over 4 hours     | 2%  |

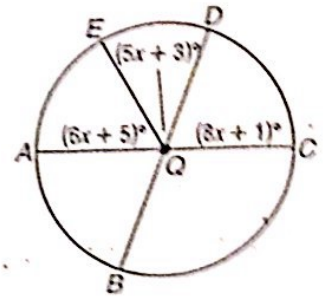
18. Describe the arcs associated with each category.

# 10-2 Practice

## Measuring Angles and Arcs

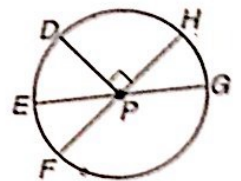
ALGEBRA In  $\odot Q$ ,  $\overline{AC}$  and  $\overline{BD}$  are diameters. Find each measure.

1.  $m\angle AQE$  59
2.  $m\angle DQE$  48
3.  $m\angle CQD$  73
4.  $m\angle BQC$  107
5.  $m\angle CQE$  121
6.  $m\angle AQD$  107



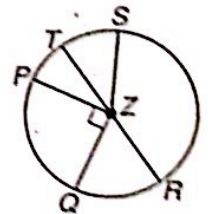
In  $\odot P$ ,  $m\angle GPH = 38$ . Find each measure.

7.  $m\widehat{EF}$  38
8.  $m\widehat{DE}$  52
9.  $m\widehat{FG}$  142
10.  $m\widehat{DHG}$  128
11.  $m\widehat{DFG}$  232
12.  $m\widehat{DGE}$  308



The radius of  $\odot Z$  is 13.5 units long. Find the length of each arc for the given angle measure.

13.  $\widehat{QPT}$  if  $m\angle QZT = 120$   
 $9\pi \approx 28.27$  units
14.  $\widehat{QR}$  if  $m\angle QZR = 60$   
 $4.5\pi \approx 14.14$  units
15.  $\widehat{PQR}$  if  $m\angle PZR = 150$   
 $11.25\pi \approx 35.34$  units
16.  $\widehat{QPS}$  if  $m\angle QZS = 160$   
 $12\pi \approx 37.70$  units



**HOMEWORK** For Exercises 17 and 18, refer to the table, which shows the number of hours students at Leland High School say they spend on homework each night.

17. If you were to construct a circle graph of the data, how many degrees would be allotted to each category?  
**28.8°, 104.4°, 208.8°, 10.8°, 7.2°**

| Homework         |     |
|------------------|-----|
| Less than 1 hour | 8%  |
| 1–2 hours        | 29% |
| 2–3 hours        | 58% |
| 3–4 hours        | 3%  |
| Over 4 hours     | 2%  |

18. Describe the arcs associated with each category.

The arc associated with 2–3 hours is a major arc; minor arcs are associated with the remaining categories.