

## 7.5 Circumference of a Circle

MATHPOWER™ Eight, pp. 216–217

The perimeter of a circle is called the **circumference**.

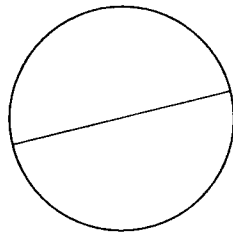
The distance across a circle through the centre of the circle is called the **diameter**.

The formula used to calculate the circumference is  $C = \pi \times d$ .

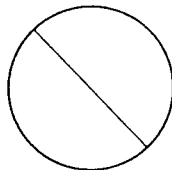
Use  $\pi = 3.14$ .

Measure the diameter of each circle and calculate the circumference, to the nearest tenth.

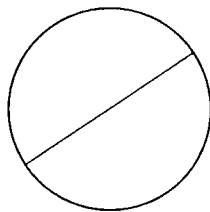
1.  $d =$  \_\_\_\_\_  
 $C =$  \_\_\_\_\_



2.  $d =$  \_\_\_\_\_  
 $C =$  \_\_\_\_\_



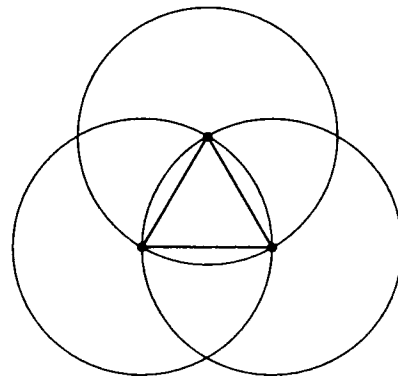
3.  $d =$  \_\_\_\_\_  
 $C =$  \_\_\_\_\_



Calculate the circumference of each circle.

- |                                 |                                 |
|---------------------------------|---------------------------------|
| 4. $d = 9.5$ cm<br>$C =$ _____  | 5. $d = 28$ cm<br>$C =$ _____   |
| 6. $r = 6.8$ cm<br>$C =$ _____  | 7. $r = 3.4$ m<br>$C =$ _____   |
| 8. $d = 17.8$ cm<br>$C =$ _____ | 9. $r = 7.25$ cm<br>$C =$ _____ |

10. The circumference of each circle is 40.82 cm. What is the perimeter of the triangle?



\_\_\_\_\_

11. The diameter of a quarter is 23.9 mm. Find the circumference.

\_\_\_\_\_

12. The circumference of a dime is 56.52 mm. Find the diameter.

\_\_\_\_\_

13. The largest tires ever manufactured measured 3.7 m in diameter. What was the circumference of each tire?

\_\_\_\_\_

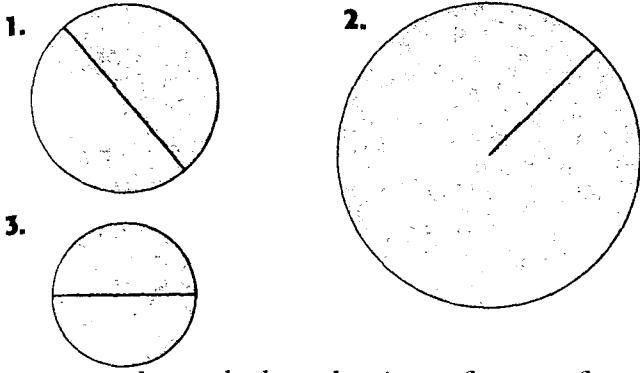
14. The first Ferris wheel was erected in 1893 at the Chicago World's Fair. It measured 240.8 m in circumference. Find the diameter, to the nearest tenth of a metre.

\_\_\_\_\_

## Practice

Read each answer to the nearest hundredth, if necessary.

Measure each radius or diameter and calculate the circumference of each circle.

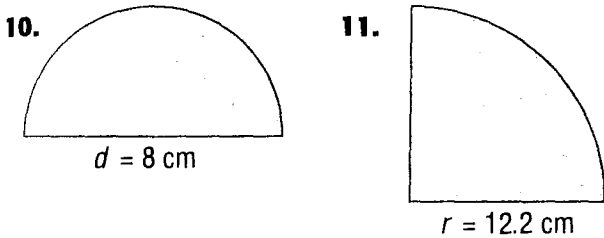


Estimate, then calculate the circumference of each circle.

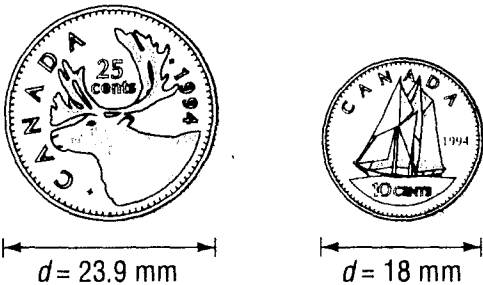
- |                 |                  |
|-----------------|------------------|
| 4. $r = 5.5$ cm | 5. $d = 8.35$ cm |
| 6. $d = 15$ cm  | 7. $r = 2.8$ m   |
| 8. $r = 23$ cm  | 9. $d = 19.2$ cm |

## Problems and Applications

Estimate, then calculate the perimeter of each figure.

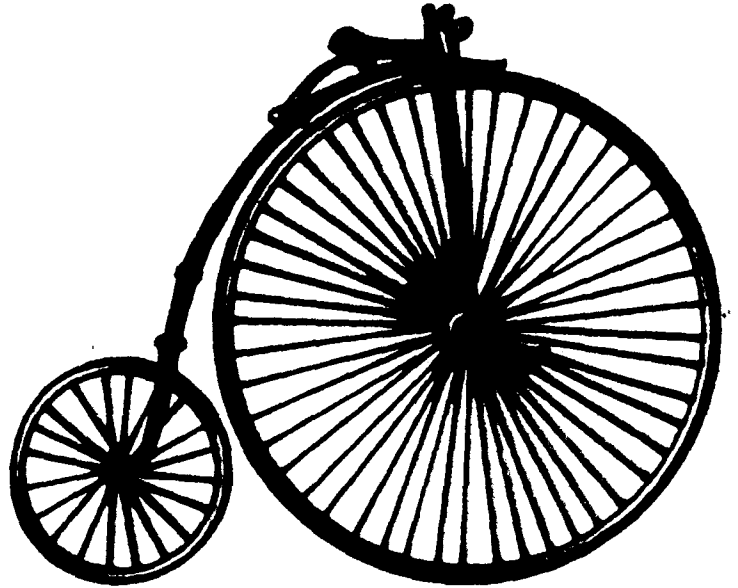


12. How much longer is the circumference of a quarter than the circumference of a dime?



The diameter of the clock face of Big Ben in London, England, is 7.1 m. What is the circumference of the clock face?

14. Penny-farthing bicycles were popular in Victorian times. A penny-farthing had a large front wheel, radius about 65 cm, and a small back wheel, radius about 25 cm.

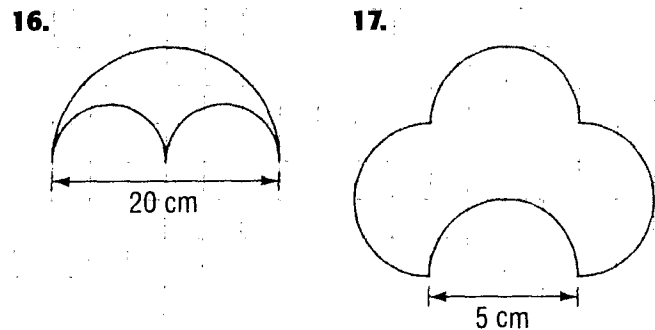


- How many times did the back wheel turn for each turn of the front wheel?
- How many times did the front wheel turn to travel 1 km?

15. What happens to the circumference of a circle in each of these situations? Use examples to explain your answers.

- The radius is doubled.
- The diameter is doubled.

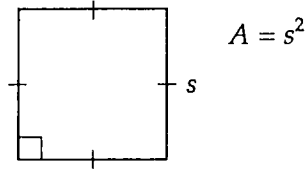
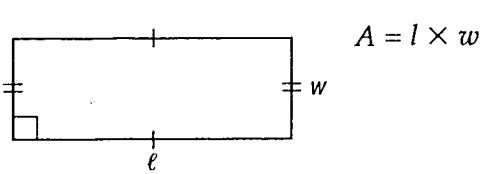
Calculate the perimeter of each figure.



18. Create a design using circles, semicircles, and quarter circles. Exchange designs with a classmate and calculate the perimeters of each other's designs.

## 7.6 Area of a Rectangle and Square

MATHPOWER™ Eight, pp. 220–221



Calculate the area of each rectangle.

1.  $A = \underline{\hspace{2cm}}$

2.  $A = \underline{\hspace{2cm}}$

3.  $A = \underline{\hspace{2cm}}$

Calculate the area of each square.

4.  $A = \underline{\hspace{2cm}}$

5.  $A = \underline{\hspace{2cm}}$

Complete each table.

	$l$	$w$	$A$
6.	2.4	1.8	
7.	14.4		89.28
8.		6.7	28.81

	$s$	$A$
9.	4.5	
10.		324
11.	17.2	

12. The length of a skating rink is three times its width. Its width is 10 m. What is its area?  
\_\_\_\_\_

13. The perimeter of a square sandbox is 4.8 m. What is its area?  
\_\_\_\_\_

14. The area of a rectangular playground is  $1350 \text{ m}^2$ . The width is 27 m. How long is the playground?  
\_\_\_\_\_

15. A postage stamp has dimensions 2 cm by 3.5 cm. Calculate the area of each of the following arrangements of stamps.

a)  $A = \underline{\hspace{2cm}}$

b)  $A = \underline{\hspace{2cm}}$

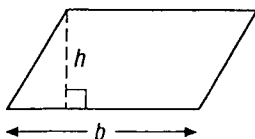
c)  $A = \underline{\hspace{2cm}}$

$A = \underline{\hspace{2cm}}$

d)  $A = \underline{\hspace{2cm}}$

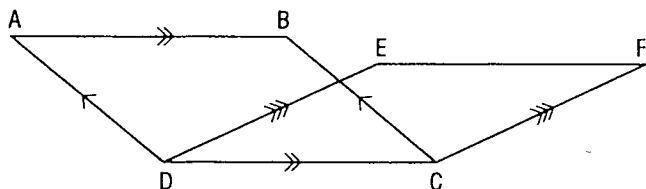
## 7.7 Area of a Parallelogram

MATHPOWER™ *Eight*, pp. 222–223



$$A = b \times h$$

Measure the necessary dimensions to calculate each area.



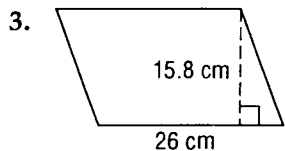
1. parallelogram ABCD

\_\_\_\_\_

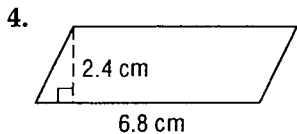
2. parallelogram EFCB

\_\_\_\_\_

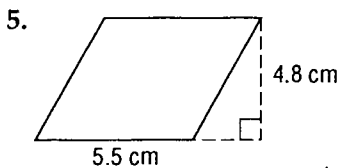
Estimate, then calculate the area of each parallelogram.



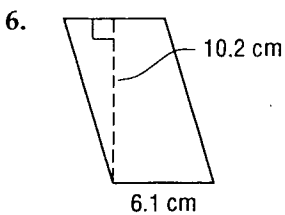
$A =$  \_\_\_\_\_



$A =$  \_\_\_\_\_



$A =$  \_\_\_\_\_



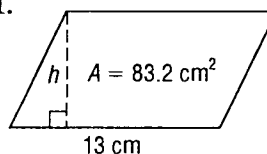
$A =$  \_\_\_\_\_

Complete the table.

	$b$	$h$	$A$
7.	12.5	6.4	
8.		13.5	32.4
9.	1.15		30.36
10.		7.6	136.8

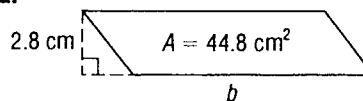
Find the missing measure.

11.



$h =$  \_\_\_\_\_

12.

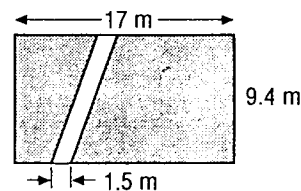


$b =$  \_\_\_\_\_

13. The area of a parallelogram is  $418.75 \text{ m}^2$ . The base is 33.5 m. Find the height.

\_\_\_\_\_

14. A sidewalk cuts through the front yard of a house.



a) What is the area of the sidewalk?

\_\_\_\_\_

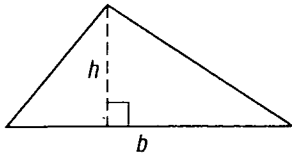
b) What area of the front yard is grass?

\_\_\_\_\_

Name \_\_\_\_\_

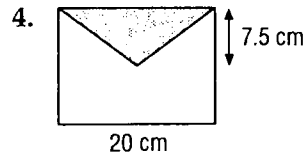
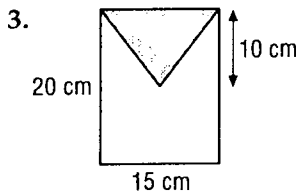
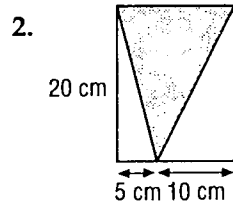
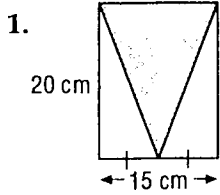
## 7.8 Area of a Triangle

MATHPOWER™ Eight, pp. 226–227

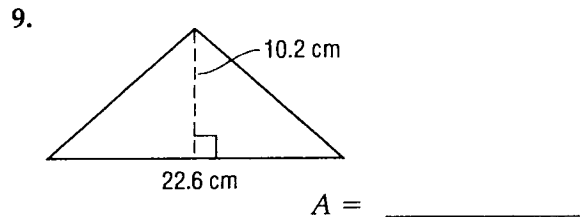
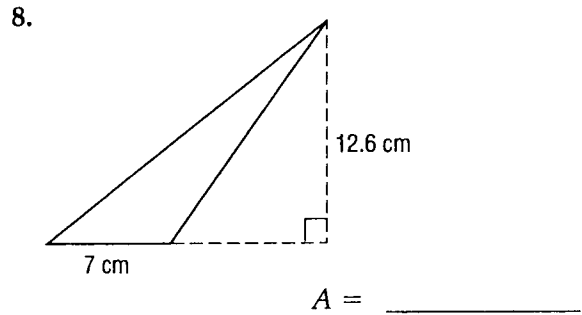
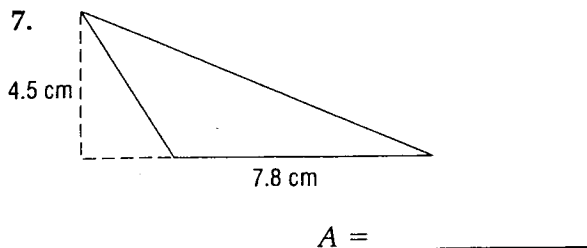
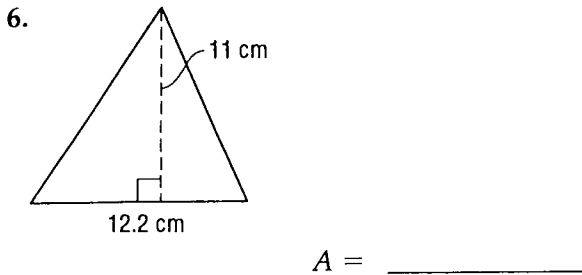
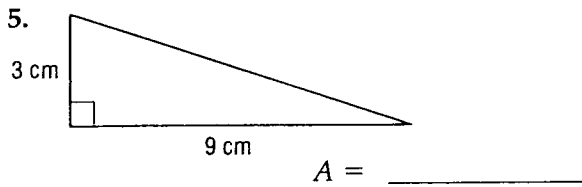


$$A = \frac{1}{2} \times b \times h$$

Find the area of the shaded triangle in each diagram.



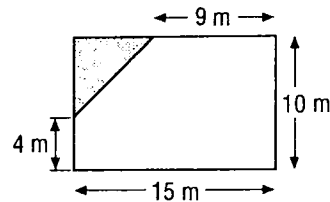
Estimate, then calculate the area of each triangle.



Complete the table.

	<i>b</i>	<i>h</i>	<i>A</i>
10.	4.6	10	
11.		8.4	29.4
12.	6.5	5.2	
13.	14.4		75.6
14.		9.8	83.3

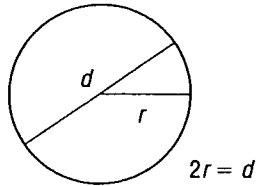
15. A triangular vegetable garden is planted in the corner of a yard.



- a) Find the area of the garden.  
\_\_\_\_\_
- b) Find the area of the yard that is not planted.  
\_\_\_\_\_

## 7.9 Area of a Circle

MATHPOWER™ Eight, pp. 228–229

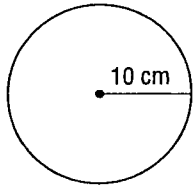


$$A = \pi r^2$$

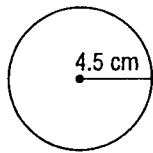
Use  $\pi = 3.14$ .

Calculate the area of each circle, to the nearest tenth.

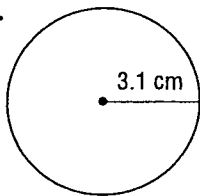
1.



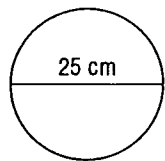
2.



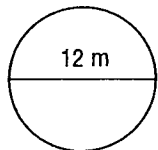
3.



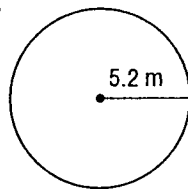
4.



5.



6.



Find the area of each circle, to the nearest tenth.

7.  $r = 6.3$  cm \_\_\_\_\_

8.  $d = 24.2$  cm \_\_\_\_\_

9.  $d = 57$  m \_\_\_\_\_

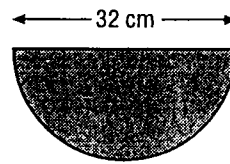
10.  $r = 10.5$  m \_\_\_\_\_

11.  $d = 15.2$  cm \_\_\_\_\_

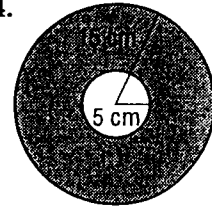
12.  $r = 13.4$  cm \_\_\_\_\_

Calculate the area of the shaded region.

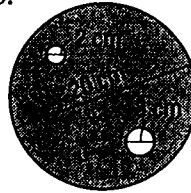
13.



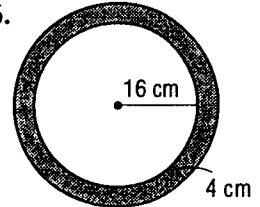
14.



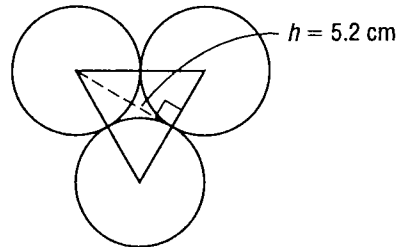
15.



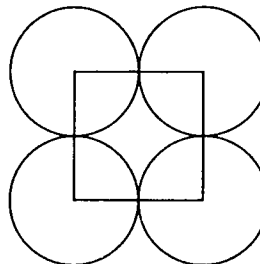
16.



17. The area of each circle is  $113.04$  cm<sup>2</sup>. Find the area of the triangle.



18. The area of each circle is  $153.86$  cm<sup>2</sup>. Find the area of the square.



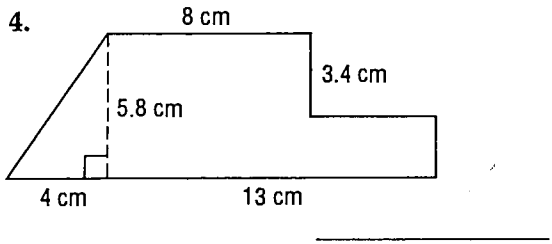
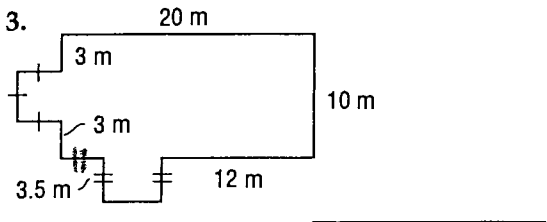
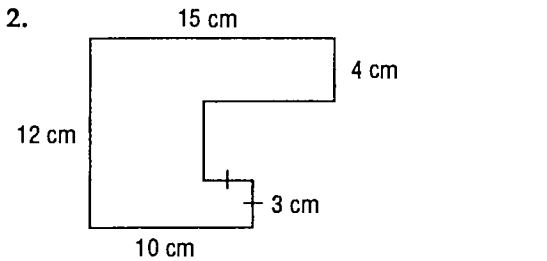
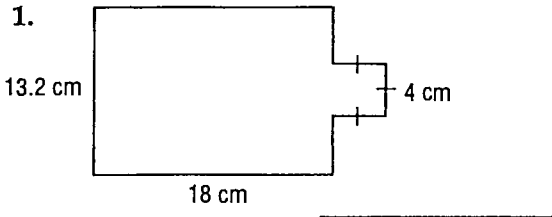
Name \_\_\_\_\_

## 7.10 Areas of Composite Figures

MATHPOWER™ *Eight*, pp. 230–231

You can calculate the area of some figures by separating the figure into regions and adding or subtracting.

Calculate the area of each figure.



Calculate the area of each shaded region.

