7.2 Exercises

Find the perimeter and area of each rectangle or square. See Examples 1–3.

1.
8 yd
6 yd   6 yd
8 yd

2.
7 in.
18 in.   18 in.
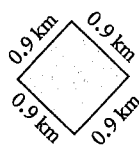7 in.

3.
0.9 km   0.9 km
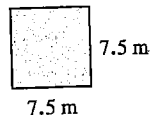0.9 km   0.9 km

4.
7.5 m
7.5 m
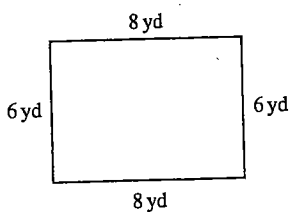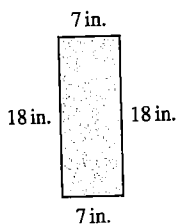
Draw a sketch of each square or rectangle and label the lengths of the sides. Then find the perimeter and the area. (Sketches may vary; show your sketches to your instructor.)

5. 10 ft by 10 ft

6. 8 cm by 17 cm

7. 14 m by 0.5 m

8. 2.35 km by 8.4 km

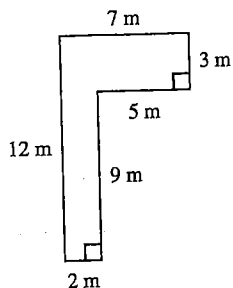**9.** A storage building that is 76.1 ft by 22 ft

10. A science lab measuring 12 m by 12 m
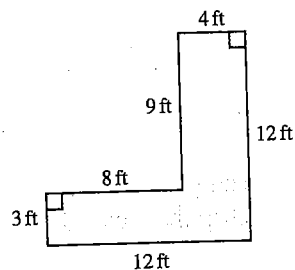
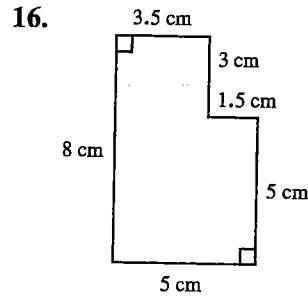**11.** A square nature preserve 3 mi wide

12. A square of cardboard 20.3 cm on a side

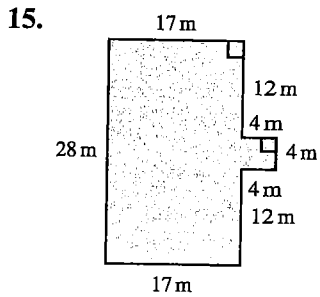*Find the perimeter and area of each figure. See Example 4.*

13.
7 m
3 m
5 m
12 m
9 m
2 m

14.
4 ft
9 ft
12 ft
8 ft
3 ft
12 ft

15.

17 m

12 m

4 m

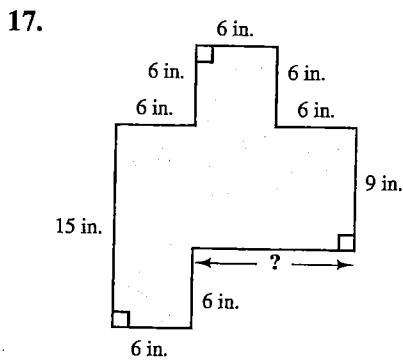28 m   4 m

4 m

12 m

17 m

16.

3.5 cm

3 cm

1.5 cm

8 cm

5 cm

5 cm

First find the length of the unlabeled side in each figure. Then find the perimeter and area of each figure.

17.

6 in.

6 in.   6 in.

6 in.   6 in.

9 in.

15 in.

?

6 in.

6 in.

18.

12 ft

18 ft   20 ft

40 ft   16 ft   10 ft

32 ft

?
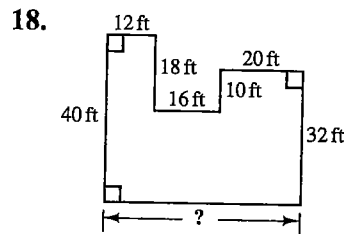
Solve each application problem. In Exercises 19–24, draw a sketch for each problem and label it with the appropriate measurements. (Sketches may vary. Show your sketches to your instructor.)

19. Gymnastic floor exercises are performed on a square mat that is 12 meters on a side. Find the perimeter and area of a mat. (*Source:* www.nist.gov)

20. A regulation volleyball court is 18 meters by 9 meters. Find the perimeter and area of a regulation court. (*Source:* www.nist.gov)

21. The Wang's family room measures 20 ft by 25 ft. They are covering the floor with square tiles that measure 1 ft on a side and cost $0.92 each. How much will they spend on tile?

22. A page in this book measures 27.5 cm from top to bottom and 20.5 cm from side to side. Find the perimeter and the area of the page.

23. Tyra's kitchen is 4.4 m wide and 5.1 m long. She is pasting a decorative border strip that costs $4.99 per meter around the top edge of all the walls. How much will she spend?

24. Mr. and Mrs. Gomez are buying carpet for their square-shaped bedroom that is 5 yd wide. The carpet is $23 per square yard and padding and installation is another $6 per square yard. How much will they spend in all?

25. Advanced Photo System (APS) cameras allow you to choose from three different print sizes each time you snap a photo. The choices are shown below. Find the perimeter and area of each size print. (*Source:* Kodak.)


Panoramic
4 in. × 14 in.

4 in. × 6 in.

4 in. × 7 in.
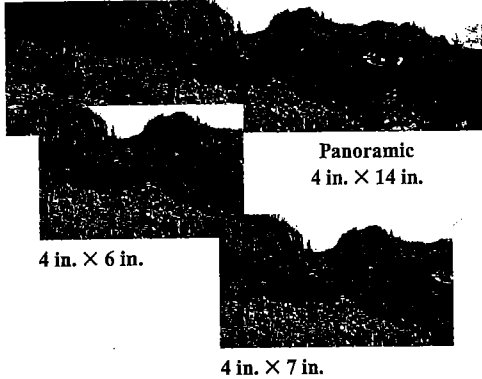
26. The table below shows information on two tents for camping.

| Tents	Coleman Family Dome	Eddie Bauer Dome Tent
Dimensions	13 ft × 13 ft	12 ft × 12 ft
Sleeps	8 campers	6 campers
Sale price	$127	$99

(*Source:* target.com)

(a) For the Coleman tent, find the perimeter, area, and number of square feet of floor space for each camper. Round to the nearest whole number.

**(b)** Find the same information for the Eddie Bauer tent.

27. A regulation football field is rectangular, 100 yd long (excluding end zones), and has an area of 5300 yd². Find the width of the field. (*Source:* National Football League.)
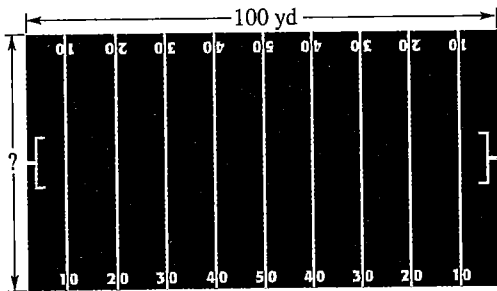

28. There are 14,790 ft² of ice in the rectangular playing area for a major league hockey game (excluding the area behind the goal lines). If the playing area is 85 ft wide, how long is it? (*Source:* National Hockey League.)
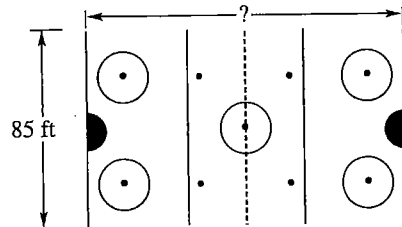
29. A rectangular lot is 124 ft by 172 ft. County rules require that nothing be built on land within 12 ft of any edge of the lot. First, add labels to the sketch of the lot, showing the land that cannot be build on. Then find the area of the land that cannot be built on.
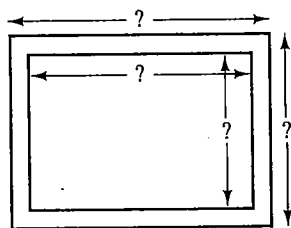
30. Find the cost of fencing needed for this rectangular field. Fencing along the country roads costs $4.25 per foot. Fencing for the other two sides costs $2.75 per foot.

82 ft   126 ft
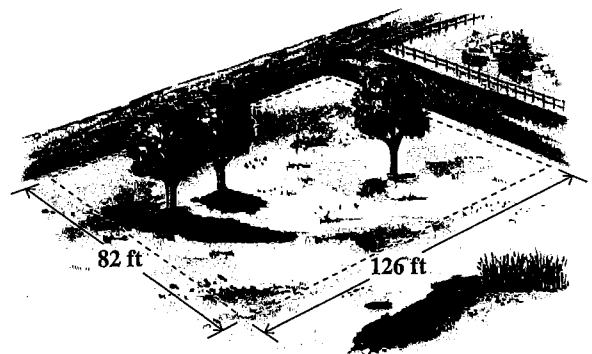
RELATING CONCEPTS (EXERCISES 31–36)   For Individual or Group Work

Use your knowledge of perimeter and area to work Exercises 31–36 in order.

31. Suppose you have 12 ft of fencing to make a square or rectangular garden plot. Draw sketches of *all* the possible plots that use exactly 12 ft of fencing and label the lengths of the sides. Use only *whole number* lengths. (*Hint:* There are three possibilities.)

32. **(a)** Find the area of each plot in Exercise 31.

   (b) Which plot has the greatest area?

33. Repeat Exercise 31 using 16 ft of fencing. Be sure to draw *all* possible plots that have whole number lengths for the sides.

34. **(a)** Find the area of each plot in Exercise 33.

   (b) Compare your results to those from Exercise 32. What do you notice about the plots with the greatest area?

35. **(a)** Draw a sketch of a rectangular plot 3 ft by 2 ft. Find the perimeter and area.

   (b) Suppose you *double* the length of the plot and *double* the width. Draw a sketch of the enlarged plot and find the perimeter and area.

   (c) The *perimeter* of the enlarged plot is how many times greater than the perimeter of the original plot? The *area* of the enlarged plot is how many times greater than the original area?

36. **(a)** Refer to part (a) of Exercise 35. Suppose you *triple* the length and width of the original plot. Draw a sketch of the enlarged plot and find the perimeter and area.

   (b) How many times greater is the *perimeter* of the enlarged plot? How many times greater is the *area* of the enlarged plot?

   (c) Suppose you make the length and width *four times greater* in the enlarged plot. What would you predict will happen to the perimeter and area, compared to the original plot?