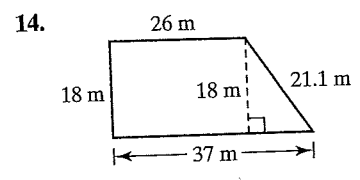
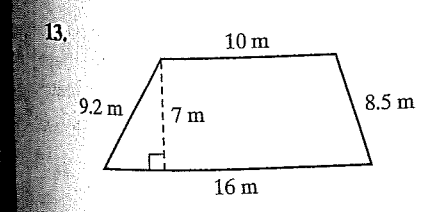
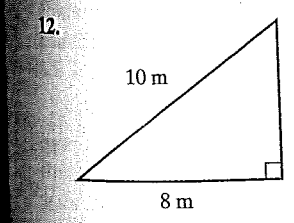
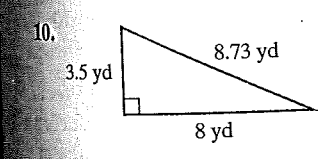
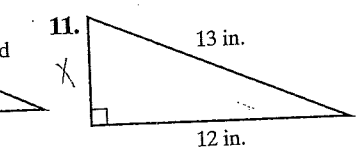
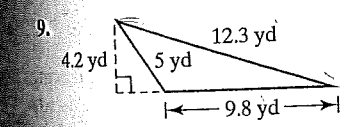
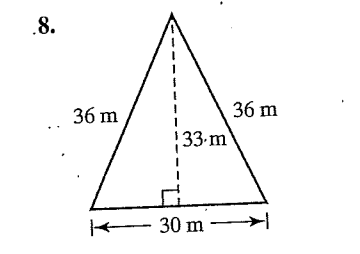
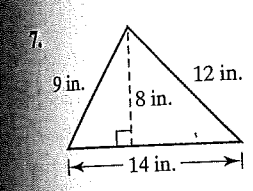
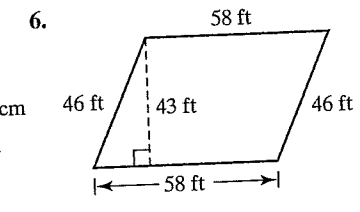
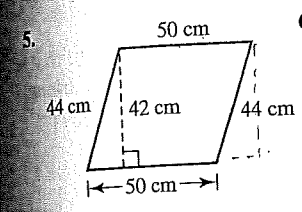
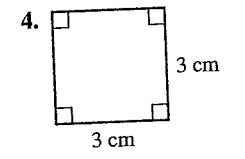
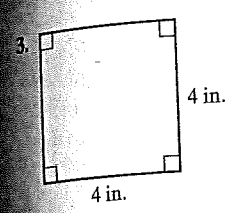
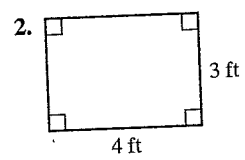
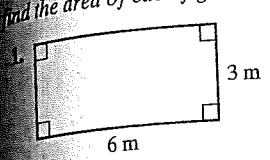


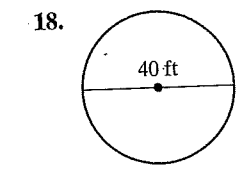
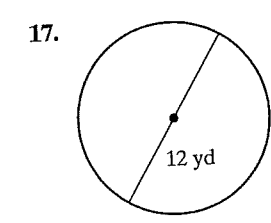
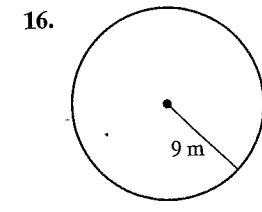
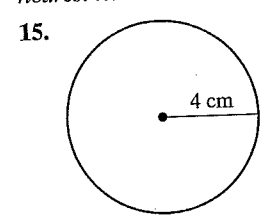
# EXERCISE SET 10.4

## Practice Exercises

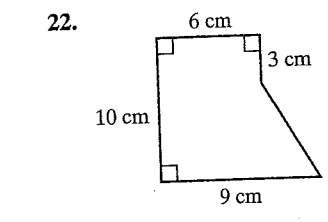
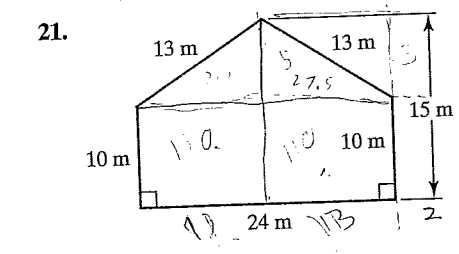
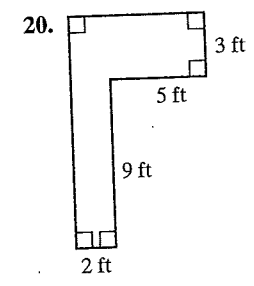
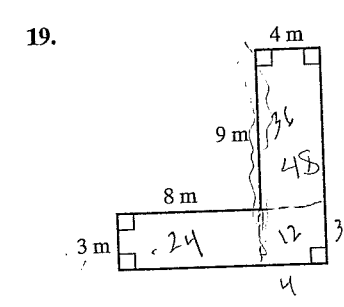
In Exercises 1–14, use the formulas developed in this section to find the area of each figure.

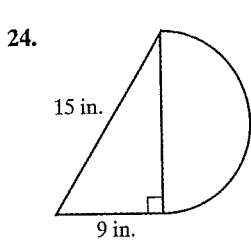
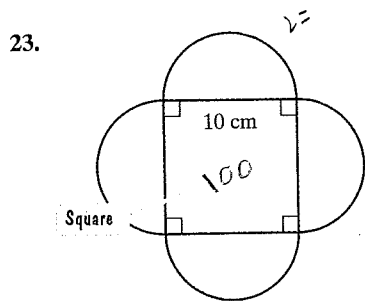


In Exercises 15–18, find the circumference and area of each circle. Express answers in terms of  $\pi$  and then round to the nearest tenth.



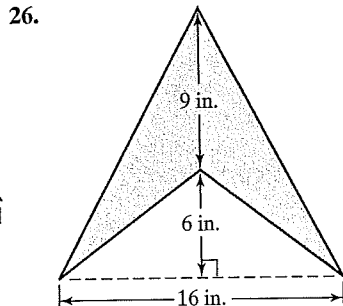
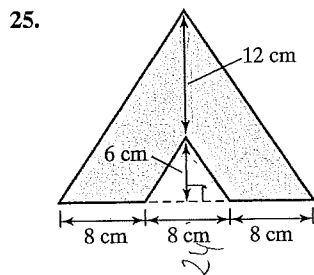
Find the area of each figure in Exercises 19–24. Where necessary, express answers in terms of  $\pi$  and then round to the nearest tenth.



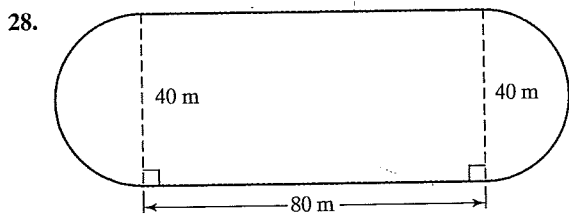
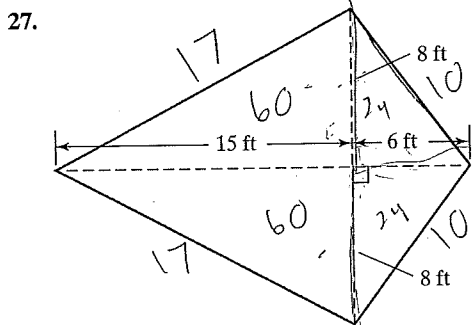


• Practice Plus

In Exercises 25–26, find the area of each shaded region.

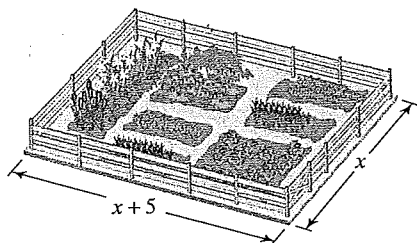


In Exercises 27–28, find the perimeter and the area of each figure. Where necessary, express answers in terms of  $\pi$  and round to the nearest tenth.

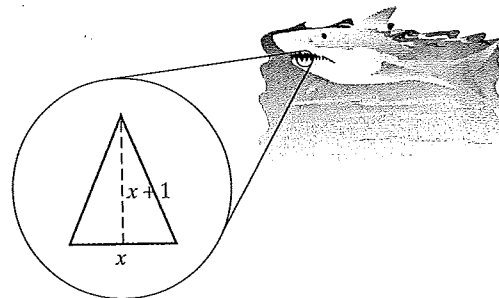


In Exercises 29–32, use a quadratic equation to solve each problem.

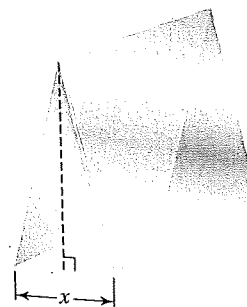
29. The length of a rectangular garden is 5 feet greater than the width. The area of the rectangle is 300 square feet. Find the length and the width.



30. The length of a rectangular sign is 3 feet longer than the width. If the sign has space for 40 square feet of advertising, find its length and its width.
31. Great white sharks have triangular teeth with a height that is 1 centimeter longer than the base. If the area of one tooth is 15 square centimeters, find its base and height.

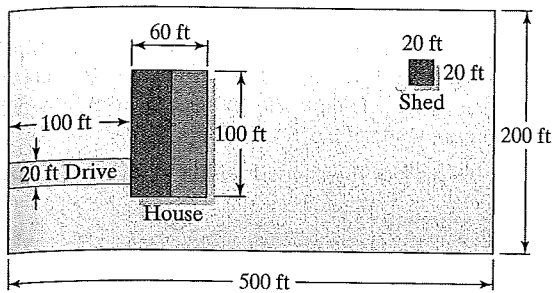


32. Each end of a glass prism is a triangle with a height that is 1 inch shorter than twice the base. If the area of the triangle is 60 square inches, how long are the base and height?

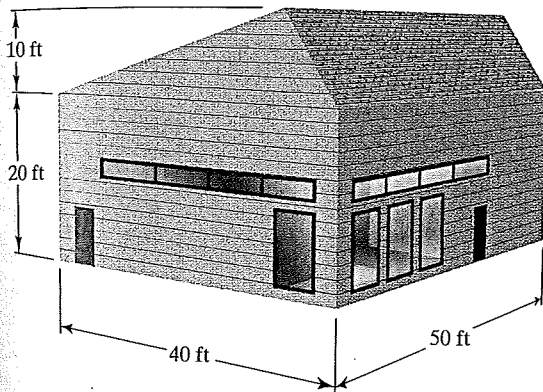


• Application Exercises

33. What will it cost to carpet a rectangular floor measuring 9 feet by 21 feet if the carpet costs \$26.50 per square yard?
34. A plastering contractor charges \$18 per square yard. What is the cost of plastering 60 feet of wall in a house with a 9-foot ceiling?
35. A rectangular kitchen floor measures 12 feet by 15 feet. A stove on the floor has a rectangular base measuring 3 feet by 4 feet, and a refrigerator covers a rectangular area of the floor measuring 4 feet by 5 feet. How many square feet of tile will be needed to cover the kitchen floor not counting the area used by the stove and the refrigerator?
36. A rectangular room measures 12 feet by 15 feet. The entire room is to be covered with rectangular tiles that measure 3 inches by 2 inches. If the tiles are sold at ten for 30¢, what will it cost to tile the room?
37. The lot in the figure shown at the top of the next page except for the house, shed, and driveway, is lawn. One bag of lawn fertilizer costs \$25.00 and covers 4000 square feet.
- Determine the minimum number of bags of fertilizer needed for the lawn.
  - Find the total cost of the fertilizer.

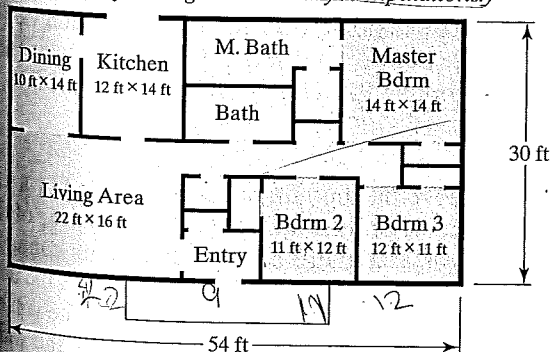


38. Taxpayers with an office in their home may deduct a percentage of their home-related expenses. This percentage is based on the ratio of the office's area to the area of the home. A taxpayer with an office in a 2200-square-foot home maintains a 20 foot by 16 foot office. If the yearly electric bills for the home come to \$4800, how much of this is deductible?
39. You are planning to paint the house whose dimensions are shown in the figure.



- a. How many square feet will you need to paint? (There are four windows, each 8 ft by 5 ft; two windows, each 30 ft by 2 ft; and two doors, each 80 in. by 36 in., that do not require paint.)
- b. The paint that you have chosen is available in gallon cans only. Each can covers 500 square feet. If you want to use two coats of paint, how many cans will you need for the project?
- c. If the paint you have chosen sells for \$26.95 per gallon, what will it cost to paint the house?

The diagram shows the floor plan for a one-story home. Use the given measurements to solve Exercises 40–42. (A calculator will be helpful in performing the necessary computations.)

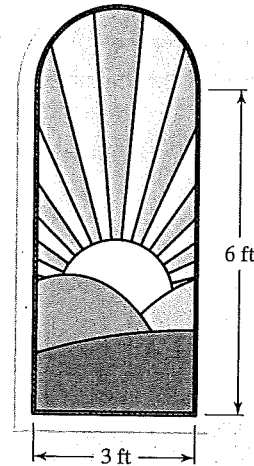


If construction costs \$95 per square foot, find the cost of building the home.

41. If carpet costs \$17.95 per square yard and is available in whole square yards only, find the cost of carpeting the three bedroom floors.
42. If ceramic tile costs \$26.95 per square yard and is available in whole square yards only, find the cost of installing ceramic tile on the kitchen and dining room floors.

In Exercises 43–44, express the required calculation in terms of  $\pi$  and then round to the nearest tenth.

43. How much fencing is required to enclose a circular garden whose radius is 20 meters?
44. A circular rug is 6 feet in diameter. How many feet of fringe is required to edge this rug?
45. How many plants spaced every 6 inches are needed to surround a circular garden with a 30-foot radius?
46. A stained glass window is to be placed in a house. The window consists of a rectangle, 6 feet high by 3 feet wide, with a semicircle at the top. Approximately how many feet of stripping, to the nearest tenth of a foot, will be needed to frame the window?



47. Which one of the following is a better buy: a large pizza with a 14-inch diameter for \$12.00 or a medium pizza with a 7-inch diameter for \$5.00?
48. Which one of the following is a better buy: a large pizza with a 16-inch diameter for \$12.00 or two small pizzas, each with a 10-inch diameter, for \$12.00?

### • Writing in Mathematics

49. Using the formula for the area of a rectangle, explain how the formula for the area of a parallelogram ( $A = bh$ ) is obtained.
50. Using the formula for the area of a parallelogram ( $A = bh$ ), explain how the formula for the area of a triangle ( $A = \frac{1}{2}bh$ ) is obtained.
51. Using the formula for the area of a triangle, explain how the formula for the area of a trapezoid is obtained.
52. Explain why a circle is not a polygon.
53. Describe the difference between the following problems:  
How much fencing is needed to enclose a circular garden?  
How much fertilizer is needed for a circular garden?