Course 1 Unit 5 Practice

LESSON 22-1

1. **Attend to precision.** Use the Triangle Inequality Property to determine whether a triangle can be formed with the given side lengths in inches. If a triangle can be formed, classify the triangle by the length of its sides.

   a. $a = 6, b = 6, c = 6$

   b. $a = 4, b = 4, c = 9$

   c. $a = 4, b = 8, c = 9$

   d. $a = 3, b = 4, c = 12$

2. Which of the following are possible side lengths of a triangle?

   A. 5, 12, and 13

   B. 2, 2, and 1

   C. 43, 30, and 22

   D. 15, 15, and 25

3. **Construct viable arguments.** Two sides of a triangle are 12 and 15 centimeters long.

   a. What is the shortest possible side length in whole centimeters for the third side?

   b. What is the longest possible side length in whole centimeters for the third side?

4. A triangle has side lengths 13, 12 and 14. What type of triangle is it? Explain.

5. A triangle has side lengths 9 cm and 14 cm. What could the third side length be in order for the triangle to be isosceles?

   A. a side length greater than 9 cm and less than 14 cm

   B. 5 cm

   C. 9 cm or 14 cm

   D. any side length greater than 5 cm and less than 23 cm

LESSON 22-2

6. Two angles in a triangle have measures of 46° and 95°. What is the measure of the third angle?

   A. 39°

   B. 46°

   C. 95°

   D. 134°

7. Identify each triangle based on the length of its sides.

   a. 7, 8, 12

   b. 9, 9, 15

   c. 8, 8, 8

   d. 6, 8, 10

8. **Use appropriate tools strategically.** Use a ruler and protractor to sketch a triangle that is isosceles and has an angle that measures 45°. Is the triangle acute, right, or obtuse? Explain.

9. Reason abstractly. Find the missing angle measure or measures in each triangle below. Then classify the triangle by both its angle measures and its side lengths.

   a. All three angles in a triangle have the same measure.

   b. Two angles in a triangle measure 50° each.

   c. Two angles in a triangle measure 35° and 55°.

10. Two angles in a triangle have measure of 40° and 20°. What type of triangle is it?

   A. acute

   B. right

   C. isosceles

   D. obtuse

LESSON 23-1

11. What is the best name for each quadrilateral?

   a. A parallelogram with four congruent sides and four right angles.

   b. A parallelogram with four right angles and opposite sides congruent.

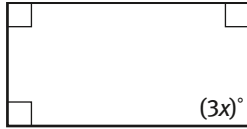   **c.** A parallelogram with four congruent sides.
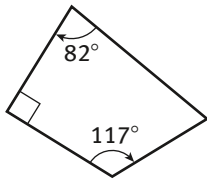
12. What is measure of the missing angle?
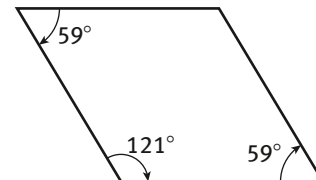
   A. 59°

   B. 62°

   C. 121°

   D. 180°

13. Reason quantitatively. What is the length of each side of a rhombus with a perimeter of 60 inches?

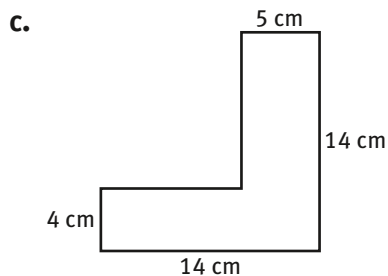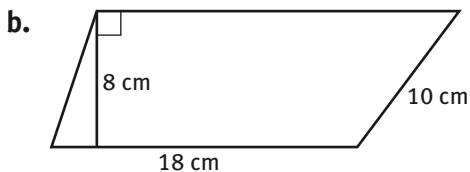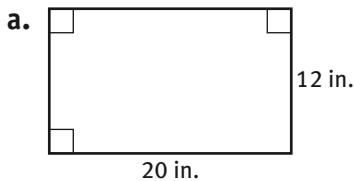**14. Attend to precision.** What is the value of x?

15. What is the missing angle measure in the quadrilateral?

    A. $63°$

    B. $71°$

    C. $82°$

    D. $161°$

LESSON 23-2

16. Find the perimeter and area of each figure.

  a.

  b.

  c.

17. Reason quantitatively. A square sign has a perimeter of 24 feet. What is the area of the sign?

18. A rectangular patio is 12 feet wide. The patio has an area of 216 square feet. What is the perimeter of the patio?

    A. 18 feet

    B. 30 feet

    C. 60 feet

    D. 162 feet

19. A rectangular floor is 18 feet long and 9 feet wide. How much will it cost to tile the floor if the tile costs $4.25 per square foot?

    A. $162.00

    B. $229.50

    C. $470.75

    D. $688.50

20. Make sense of problems. Sandra needs to put a coat of primer and two coats of paint on 8 rectangular walls. Each wall is 8 feet by 14 feet. Each can of paint covers 300 square feet. Each can of primer covers 200 square feet. How many cans of paint and primer does Sandra need? Explain your thinking.
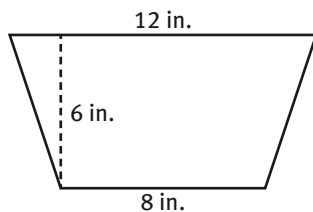
LESSON 23-3

21. Find the area of each figure.

a.

10 cm

24 cm

b.
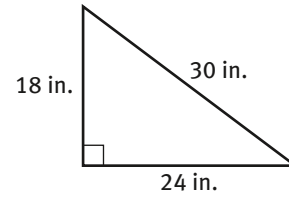
10 cm

8 cm

18 cm

c.

6 ft   7 ft

12 ft
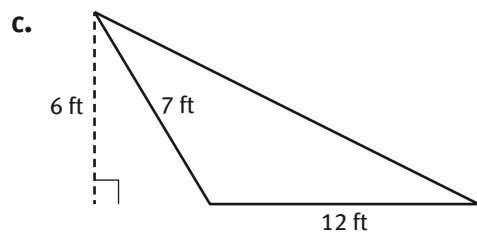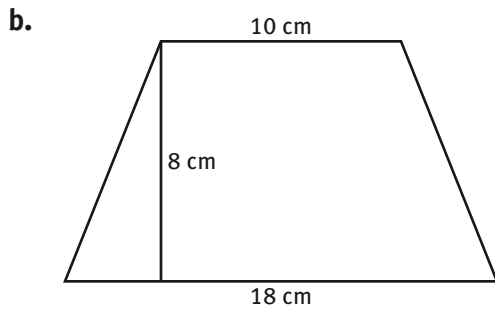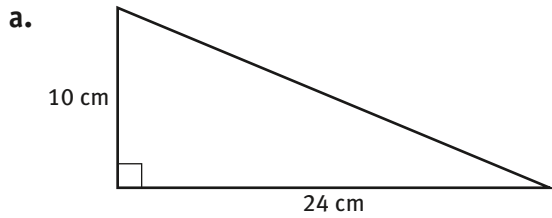
22. Reason abstractly. A triangle has a height of 18 inches and an area of 279 square inches. What is the length of the base of the triangle?

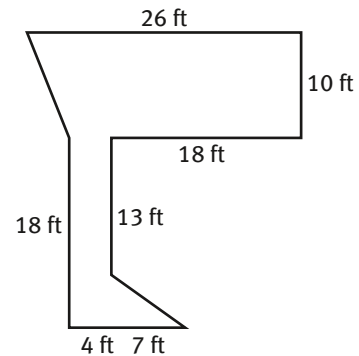**23.** What is the area of the figure shown?

12 in.

6 in.

8 in.

A. 345 square inches

B. 552 square inches

C. 615 square inches

D. 1230 square inches

24. What is the area of the figure shown?
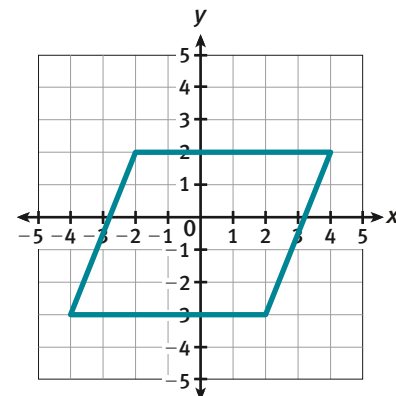
18 in.   30 in.

24 in.

A. 216 square inches

B. 270 square inches

C. 360 square inches

D. 432 square inches

25. Make sense of problems. What is the area of the figure shown?

26 ft

10 ft

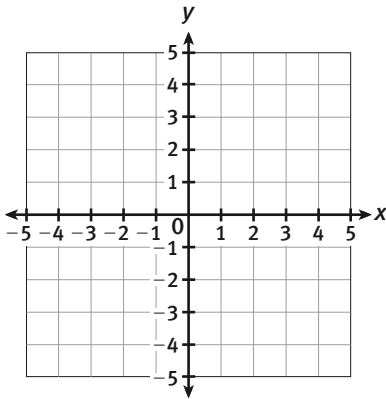18 ft

18 ft   13 ft

4 ft   7 ft

LESSON 24-1

26. Use the parallelogram to answer the following.

a. What is the length of the parallelogram?

b. What is the height of the parallelogram?

27. A line segment has endpoints (4.25, 6.25) and $(-2, 6.25)$. What is the length of the line segment?

A. 2 units

B. 4 units

C. 4.25 units

D. 6.25 units

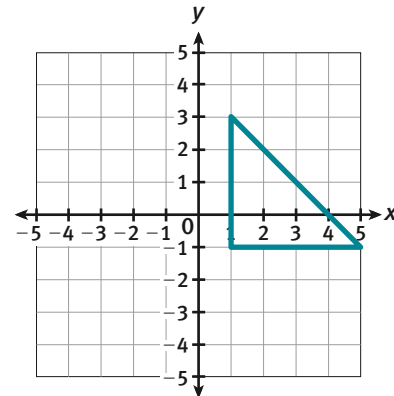**28. Model with mathematics.** Use the grid to answer the following.

a. If a rectangle has the points, $N(-1, 4)$, $O(3, 4)$, $P(3, -5)$ and $Q(-1, -3)$. Draw the rectangle *NOPQ*.

b. What is the length of side *NQ*?

c. What is the length of side *QP*?

d. What is the area of rectangle *NOPQ*?

29. A quilter aligns 12 parallelograms of the same size to create a pattern. What is the total area of the quilter's pattern if each square on the grid represents 1 foot?

A. 12 ft^2

B. 24 ft^2

C. 144 ft^2

D. 1728 ft^2

30. Reason abstractly. A square has vertices at (3, 8), (3, 2), (9, 8) and (9, 2). Without drawing the square, determine the area.
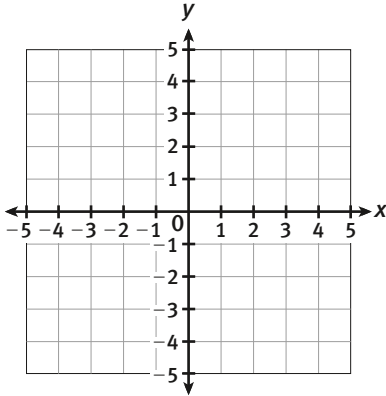
LESSON 24-2

31. What is the area of the triangle?

A. 4 square units

B. 8 square units

C. 16 square units

D. 64 square units

**32. Model with mathematics.** Use the grid to answer the following.

a. If a triangle has vertices, $K(0, -1)$, $L(-4, 5)$, $M(4, 5)$. Draw the triangle KLM.

b. What is the length of the base of the triangle?

c. What is the height of the triangle?

d. What is the area of triangle KLM?

33. A trapezoid has one base that measures 16 centimeters and the other that measures 12 centimeters. The height of the trapezoid is 4 centimeters. What is the area of the trapezoid?

(Hint: Area $= \dfrac{1}{2} \times h \times (b_1 + b_2)$)

A. 24 cm²

**B.** 32 cm²

C. 56 cm²

D. 112 cm²

34.
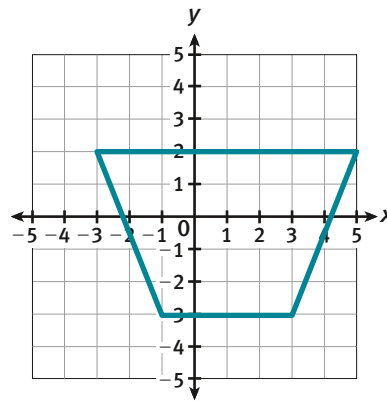
a. What are the lengths of each of the bases of the trapezoid?

b. What is the height of the trapezoid?

c. What is the area of the trapezoid?

35. Persevere in solving problems. A triangular banner has a base of 4 meters and a height of 6 meters. What is the cost to make the banner if the material costs $2.45 per square meter?

LESSON 25-1

**36.** The box below is a net of a cube and is used to ship a soccer ball.

8 inches
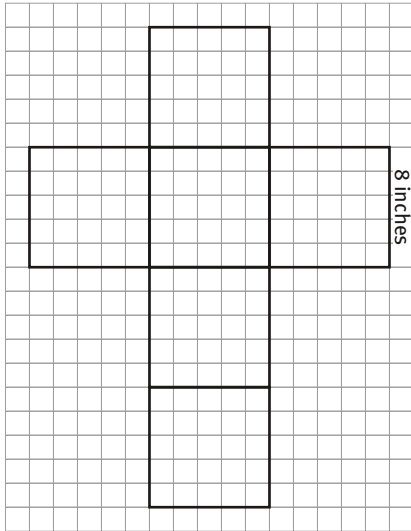
a. What is the area of each cube?

b. How many sides form a cube?

c. What is the total surface area of the cube?

37. A cube shaped box with 9 centimeter edges is used for shipping glass figurines. What is the surface area of the box?

A. 54 in²

B. 108 in²

C. 324 in²

D. 486 in²

38. What is the surface area of a cube with edges that are $4\frac{1}{2}$ inches long?

A. 27 in²

B. 60.75 in²

C. 121.5 in²

D. 243 in²

39. Reason quantitatively. A cube has a surface area of 726 in². What is the edge length of the cube? Explain.

40. Make sense of problems. A cube shaped box has edges that are 16 centimeters long. The box does not have a top. What is the surface area of the box? Justify your answer.

LESSON 25-2

41. A shoe box has a length of 12 inches, a width of 6 inches and a height of 5 inches. What is the area of the shoe box?

   A. 162 square units

   B. 324 square units

   C. 360 square units

   D. 720 square units

42. Model with mathematics.

8 inches   7 inches   3 inches
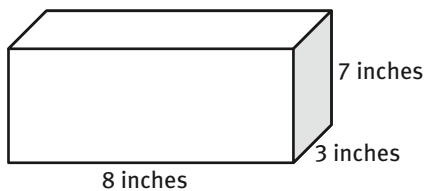
   a. Draw and label a net of the rectangular prism.

   b. Determine the surface area of the rectangular prism.

43. Use the net to find the surface area of the rectangular prism.

8 inches   10 inches   6 inches   6 inches   8 inches   10 inches   8 inches   8 inches
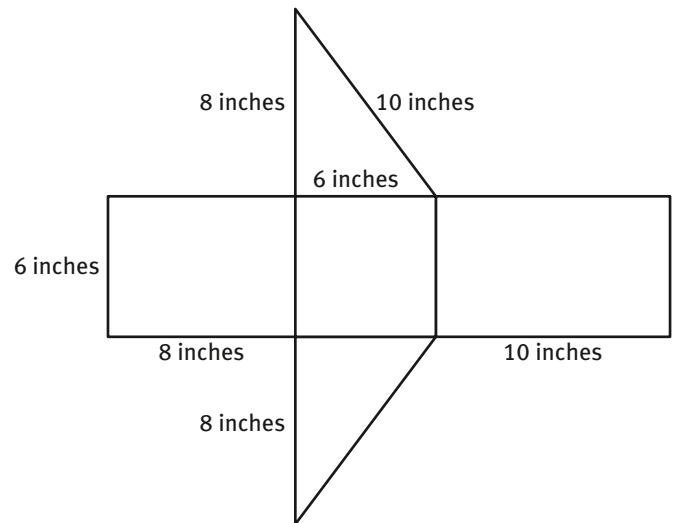
   A. 156 square inches

   B. 168 square inches

   C. 192 square inches

   D. 240 square inches

44. A box of cereal is shaped like a rectangular prism. The box is 9 inches long, 3 inches wide and 13 inches tall. What is the surface area of the box of cereal?

45. Persevere in solving problems. A box is 3 feet long, 18 inches wide and 7 inches tall. How much would it cost to cover the box in material if the material costs 2 cents per square inch? Explain how you found your cost.

LESSON 26-1

46. Model with mathematics. Use the diagram to find the volume of the cube.

16 mm
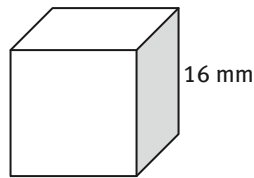
47. What is the volume of a cube with side length of $\frac{3}{4}$ ft?

    A. $\frac{3}{64}$ ft³

    B. $\frac{9}{64}$ ft³

    C. $\frac{27}{64}$ ft³

    D. $\frac{81}{64}$ ft³

**48.** An ice cube has side lengths that are 2.5 cm long. What is the volume of the ice cube?

    A. 6.25 cm³

    B. 15.625 cm³

    C. 37.5 cm³

    D. 90 cm³

49. The area of one face of a cube is 81 cubic inches. What is the volume of the cube?

50. Reason quantitatively. A cube has a surface area of 294 square inches. What is the volume of the cube? Explain your reasoning.

LESSON 26-2

**51.** A gift box is shaped like a rectangular prism with the dimensions shown.

3 inches
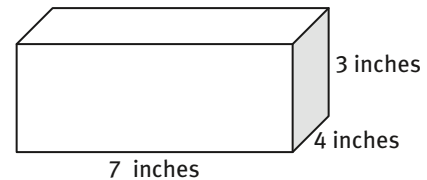
4 inches

7 inches

    a. What is the area of the base of the gift box?

    b. What is the volume of the gift box?

52. A cabinet is shaped like a rectangular prism. The cabinet has a volume of 3888 cubic inches. The cabinet is 18 inches long and 24 inches high. How deep is the cabinet?

    A. 6 inches

    B. 8 inches
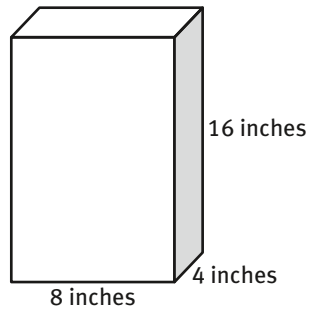
    C. 9 inches

    D. 12 inches

53. A briefcase is shaped like a rectangular prism with the dimensions shown.

$14\frac{1}{2}$ inches

3 inches

$18\frac{1}{2}$ inches
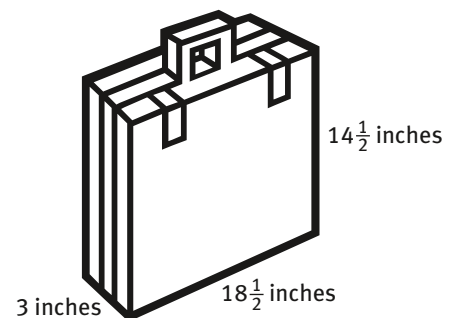
    a. What is the area of the base of the briefcase?

    b. What is the volume of the briefcase?

54. Reason quantitatively. What is the maximum number of cubes with side length of 4 inches that can fit in the box shown?

16 inches

8 inches

4 inches

A. 4 cubes

B. 8 cubes

C. 10 cubes

D. 12 cubes

55. Make sense of problems. Sharon is filling a large garden planter with soil. She will leave 3 inches empty from the top. How much soil does she need?

1 foot

2 feet

3 feet