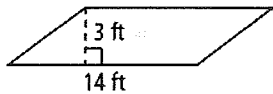# 6-8

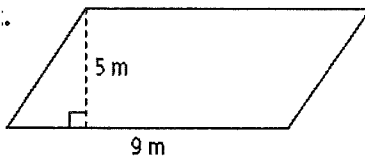## Practice   Form G

Areas of Parallelograms and Triangles
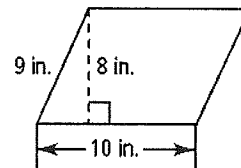
Find the area of each parallelogram.

1.
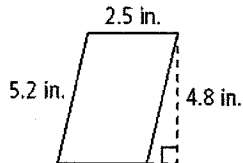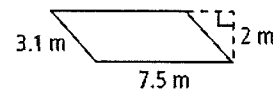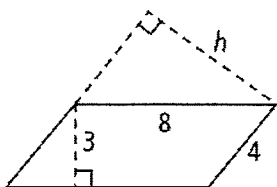

2.

3.

4.
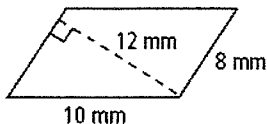
5.

6.

Find the value of *h* for each parallelogram.

7.

8.
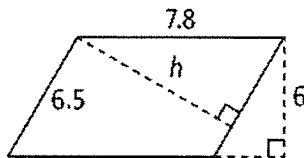
9.

Find the area of each triangle.

10.

11.

12.

13.

14.

15.

16. **Algebra** In a parallelogram, a base, *b*, and its corresponding height, *h*, are in the ratio of 5 : 3. The area is 135 mm². Find *b* and *h*.

17. **Reasoning** A triangle has an area of 18 ft². List all the possible positive integers that could represent its base and height.

6-8

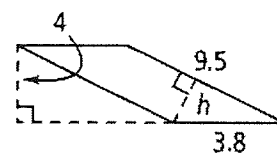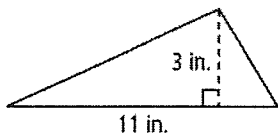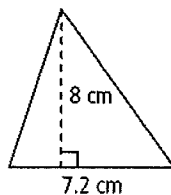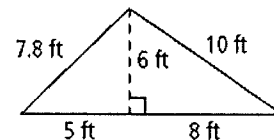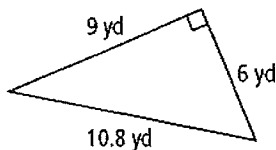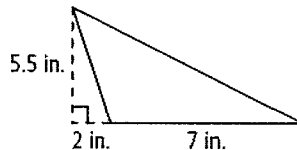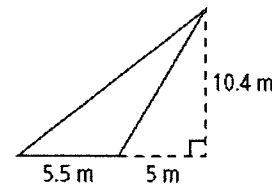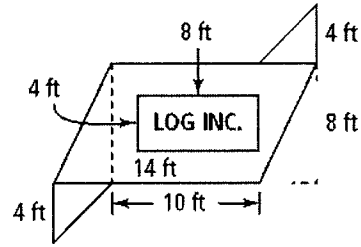**Practice** (continued)   *Form G*

Areas of Parallelograms and Triangles

18. A company wants to paint its logo on the side of a
building. The entire area needs to be covered with a
primer. The two triangular areas will be painted red,
the rectangle containing the company's name will be
white, and the rest of the parallelogram will be
yellow.

a. Find the area for each different color.

b. Find the area that must be painted with primer.

19. A scale drawing of the side view of a house is shown at the
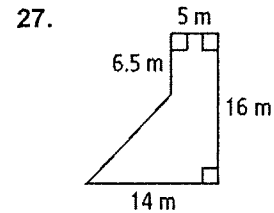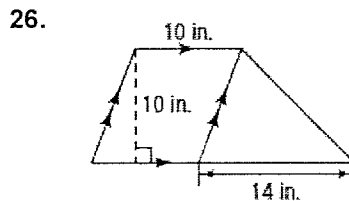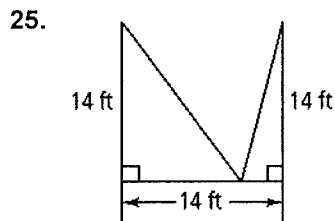right. Find the total area (in square inches) of the side of the
house in the drawing.
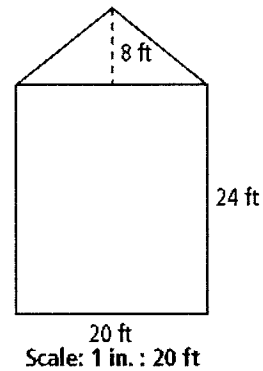
20. Open-Ended Using graph paper, draw a figure
with area 42 units^2 made up of a parallelogram
and a triangle.

Coordinate Geometry Find the area of a polygon with the
given vertices.

21. $A(2, 2)$, $B(5, 2)$, $C(3, -1)$, $D(0, -1)$

22. $A(1, 4)$, $B(-2, -2)$, $C(-7, -2)$, $D(-4, 4)$

23. $A(5, -3)$, $B(-1, -3)$, $C(-1, 2)$, $D(5, 6)$

24. $A(5, 0)$, $B(5, 8)$, $C(-1, 7)$, $D(-1, -6)$

Find the area of each figure.

25.   **26.**   **27.**

28. Reasoning A parallelogram has a height of 6 units and a corresponding base of
7 units. What is the area of each triangle formed when one diagonal of the
parallelogram is drawn? What is the area of each small triangle formed when two
diagonals are drawn?

29. A parallelogram has sides 24 m and 5 m. The height corresponding to a 24-m base
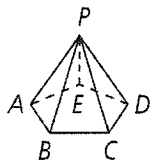is 4 m. What it the height corresponding to a 5-m base?
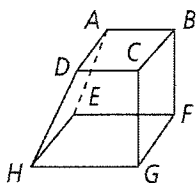
6-9

Practice

Form G

Space Figures and Cross Sections

For each polyhedron, how many vertices, edges, and faces are there? List them.

1.

2.

For each polyhedron, use Euler's Formula to find the missing number.

3. Faces: ☐   Edges: 12   Vertices: 8

4. Faces: 9   Edges: ☐   Vertices: 14

5. Faces: 10   Edges: 18   Vertices: ☐

6. Faces: ☐   Edges: 24   Vertices: 16
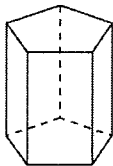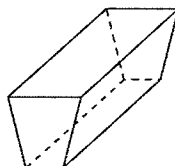
7. Faces: 8   Edges: ☐   Vertices: 6

Verify Euler's Formula for each polyhedron. Then draw a net for the figure and verify Euler's Formula for the two-dimensional figure.
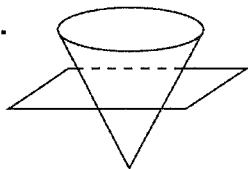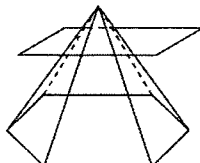
8.

9.

Describe each cross section.

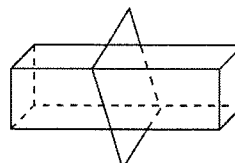**10.**

11.

12.

6-9

Practice (continued)   *Form G*

Space Figures and Cross Sections

13. **Open-Ended** Sketch a polyhedron with more than four faces whose faces are all triangles. Label the lengths of its edges. Use graph paper to draw a net of the polyhedron.

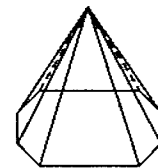**Use Euler's Formula to find the number of vertices in each polyhedron.**

14. 6 faces that are all parallelograms

15. 2 faces that are heptagons, 7 rectangular faces

16. 6 triangular faces

Reasoning Can you find a cross section of a square pyramid that forms the figure? Draw the cross section if the cross section exists. If not, explain.

17. square   18. isosceles triangle   19. rectangle that is not

                                                                          a square

20. equilateral triangle   21. scalene triangle   22. trapezoid

23. What is the cross section formed by a plane containing a vertical line of symmetry for the figure at the right?

24. What is the cross section formed by a plane that is parallel to the base of the figure at the right?

25. **Reasoning** Can a polyhedron have 19 faces, 34 edges, and 18 vertices? Explain.

26. **Reasoning** Is a cone a polyhedron? Explain.

27. **Visualization** What is the cross section formed by a plane that intersects the front, right, top, and bottom faces of a cube?
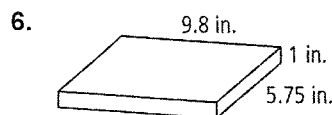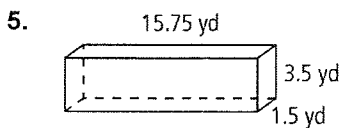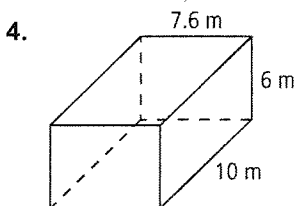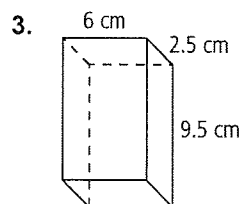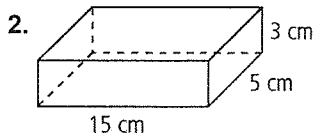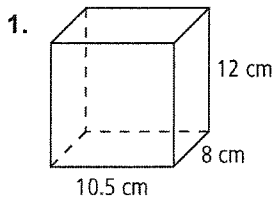
6-10 Practice
Volumes of Prisms and Cylinders
Form G

**Find the volume of each rectangular prism.**

1.

12 cm
8 cm
10.5 cm

2.
3 cm
5 cm
15 cm

3.
6 cm
2.5 cm
9.5 cm

4.
7.6 m
6 m
10 m

5.
15.75 yd
3.5 yd
1.5 yd

6.
9.8 in.
1 in.
5.75 in.

7. The base is a square, 4.5 cm on a side. The height is 5 cm.

**8.** The base is a rectangle with length 3.2 cm and width 4 cm. The height is 10 cm.

Find the volume of each triangular prism to the nearest tenth.

9.
7 mm
18 mm
35 mm

10.
18 cm
22 cm
18 cm
19 cm

11.
25 m
7 m
22 m
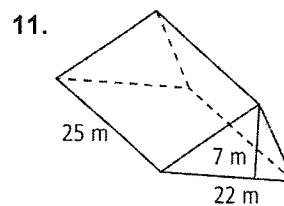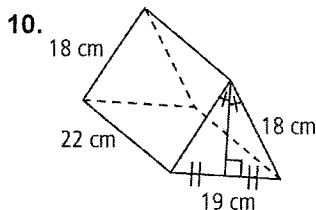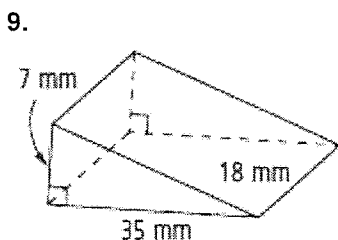
12. The base is a right triangle with a leg of 12 in. and hypotenuse of 15 in. The height of the prism is 10 in.

13. The base is a 30°-60°-90° triangle with a hypotenuse of 10 m. The height of the prism is 15 m. Find the volume to the nearest tenth.

Find the volume of each cylinder in terms of π and to the nearest tenth.

14.
8.5 m
7 m

15.
8.5 cm
4.5 cm

16.
2 mm
10 mm
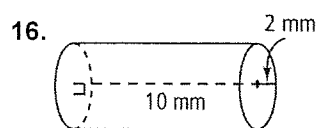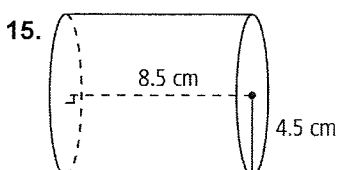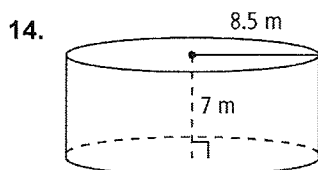
17. a right cylinder with a radius of 3.2 cm and a height of 10.5 cm
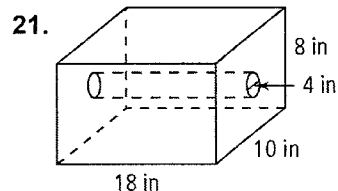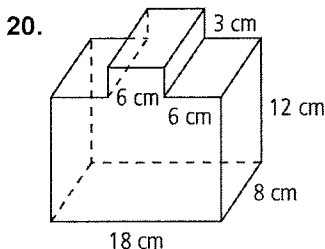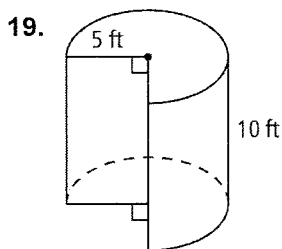
18. a right cylinder with a diameter of 8 ft and a height of 15 ft.

6-10

Practice (continued)   Form G
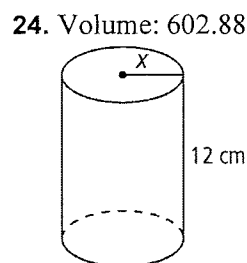
Volumes of Prisms and Cylinders

Find the volume of each composite figure to the nearest whole number.

19.

5 ft

10 ft

20.

3 cm

6 cm

6 cm

12 cm

8 cm

18 cm

21.

8 in

4 in

10 in

18 in

Find the value of x to the nearest tenth.

22. Volume: 576 cm^3

x

8 cm

8 cm

23. Volume: 980 mm^3

x

20 mm

14 mm

24. Volume: 602.88 cm^3

x

12 cm
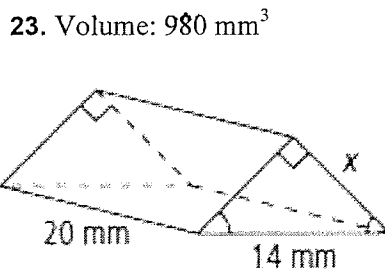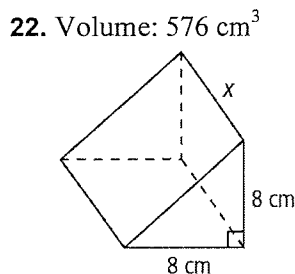
25. A cylindrical weather satellite has a diameter of 6 ft and a height of 10 ft. What is the volume available for carrying instruments and computer equipment, to the nearest tenth of a cubic foot?

26. A No. 10 can has a diameter of 15.5 cm and a height of 17.5 cm. A No. 2.5 can has a diameter of 9.8 cm and a height of 11 cm. What is the difference in volume of the two can types, to the nearest cubic centimeter?

#2.5

#10
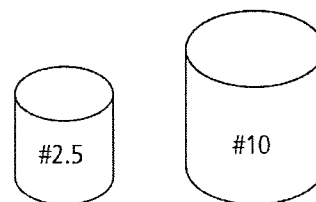
27. The NCAA recommends that a competition diving pool intended for use with two 1-m springboards and two 3-m springboards, in addition to diving platforms set at 5 m, 7.5 m, and 10 m above the water, have a width of 75 ft 1 in., a length of 60 ft, and a minimum water depth of 14 ft 10 in. What is the minimum volume of water such a pool would hold in cubic yards, to the nearest whole number?

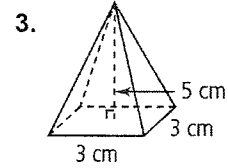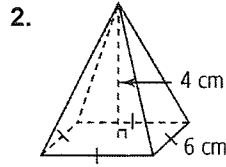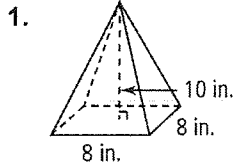**25.** What is the volume of the solid figure formed by the net?

4 m

8 m

10 m   4 m
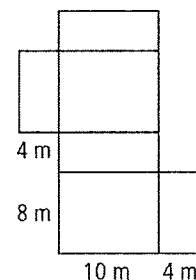
6-11 **Practice**   *Form G*

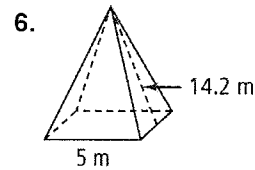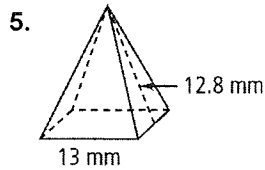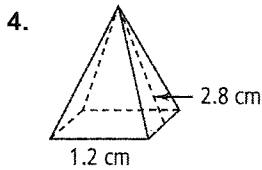Volumes of Pyramids and Cones

Find the volume of each square pyramid. Round to the nearest tenth if necessary.

1.   2.   3.

Find the volume of each square pyramid, given its slant height. Round to the nearest tenth.

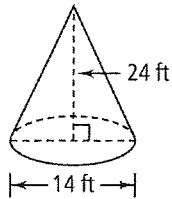4.   5.   6.

7. The base of a pyramid is a square, 4.5 cm on a side. The height is 5 cm. Find the volume.
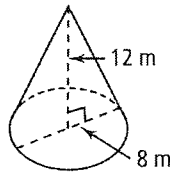
8. The base of a pyramid is a square, 3.2 cm on a side. The height is 10 cm. Find the volume to the nearest tenth.

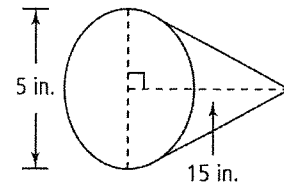**Find the volume of each cone in terms of π and also rounded as indicated.**

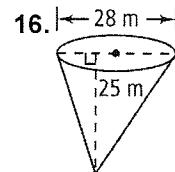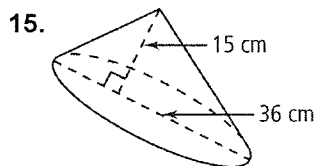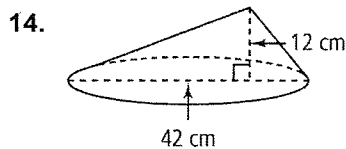9. nearest cubic foot   10. nearest cubic meter   11. nearest cubic inch

12. The base has a radius of 16 cm and a height of 12 cm. Round to the nearest cubic centimeter.

13. The base has a diameter of 24 m and a height of 15.3 m. Round to the nearest cubic meter.

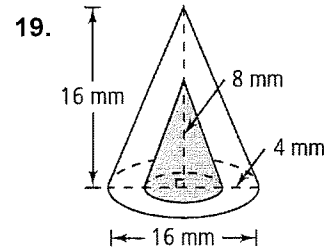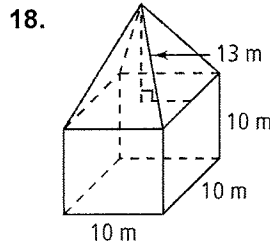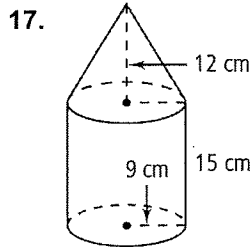**Find the volume to the nearest whole number.**

14.   15.   16.
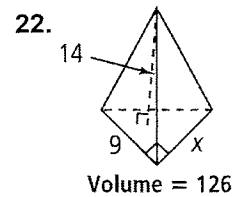
6-11 **Practice** (continued) Form G

Volumes of Pyramids and Cones

Find the volume of each figure to the nearest whole number.

17.

12 cm

9 cm | 15 cm

18.

13 m

10 m

10 m

10 m

19.

16 mm

8 mm

4 mm

16 mm

Algebra Find the value of x in each figure. Leave answers in simplest radical form. The diagrams are not to scale.

20.

x

15

15

Volume = 1500

21.

x

6

Volume = 8π

22.

14

9   x

Volume = 126
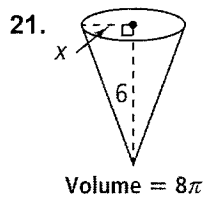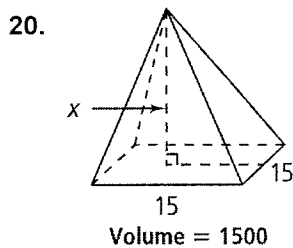
23. One right circular cone is set inside a larger right circular cone. The cones share the same axis, the same vertex, and the same height. Find the volume of the space between the cones if the diameter of the inside cone is 6 in., the diameter of the outside cone is 9 in., and the height of both is 5 in. Round to the nearest tenth.

24. Some Native Americans still use tepees for special occasions and ceremonial purposes. Each group attending a family reunion, for example, might bring a small tepee, but use a larger tepee like the one pictured at the right for gathering together. The many poles form a rough cone with a circular base. What is the approximate volume of air in the tepee at the right, to the nearest cubic foot?

16.8 ft

19.5 ft
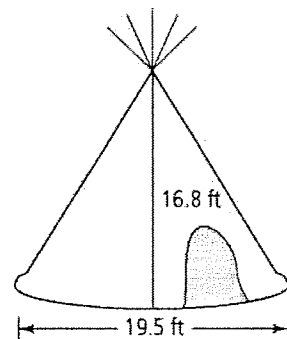
Visualization Suppose you revolve the plane region completely about the given line to sweep out a solid of revolution. Describe the solid. Then find its volume in terms of π.

25. the x-axis

26. the y-axis

27. the line $x = 3$

28. the line $y = -2$

y

2

x

2   0

2