KEY VOCABULARY

- base of a parallelogram, *p. 514*
- height of a parallelogram, *p. 514*
- perpendicular, *p. 514*
- base of a triangle, *p. 518*
- height of a triangle, *p. 518*
- circle, *p. 525*
- center, *p. 525*

- radius, *p. 525*
- diameter, *p. 525*
- circumference, *p. 525*
- pi (π), *p. 525*
- solid, *p. 541*
- prism, *p. 541*
- cylinder, *p. 541*

- pyramid, *p. 541*
- cone, *p. 541*
- sphere, *p. 541*
- face, edge, vertex, *p. 542*
- surface area, *p. 545*
- volume, *p. 550*

VOCABULARY EXERCISES

Tell whether the statement is *true* or *false*. *Justify* your reasoning.

1. The circumference of a circle is measured in square units.

2. The surface area of a prism is measured in square units.

3. The distance from the center of a circle to any point on the circle is called the diameter.

Copy and complete the statement.

4. Two intersecting lines that meet at a right angle are __?__ .

5. The base of a cone is a(n) __?__ .

6. The __?__ of a prism is the sum of the areas of its faces.

7. The __?__ of a prism is the amount of space that it occupies.

REVIEW EXAMPLES AND EXERCISES

Area of a Parallelogram   *pp. 514–517*

EXAMPLE

Find the area of the parallelogram.

$A = bh$

$= 15 \cdot 5$

$= 75$

▶**Answer** The area of the parallelogram is 75 square centimeters.

EXERCISES

Find the area of a parallelogram with the given dimensions.

8. $b = 6$ inches, $h = 10$ inches

9. $b = 15.5$ feet, $h = 24$ feet

10. A parallelogram has an area of 21 square meters and a height of 3 meters. Find the base.
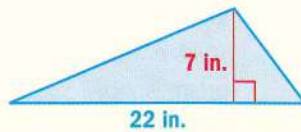
10.2 Area of a Triangle

EXAMPLE

Find the area of the triangle.

$$A = \frac{1}{2}bh$$

$$= \frac{1}{2} \cdot 22 \cdot 7$$

$$= 77$$

7 in.

22 in.

▶ **Answer** The area of the triangle is 77 square inches.

EXERCISES
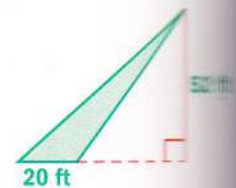
Find the area of the triangle.

11.

16 m

30 m

12.

10 mi

10 mi

13.

52 ft

20 ft
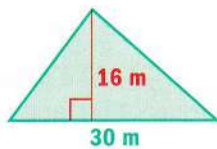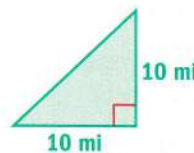
10.3 Circumference of a Circle

EXAMPLE

Find the circumference of the circle.

$$C = \pi d$$

$$\approx (3.14)(10)$$

$$= 31.4$$

10 yd
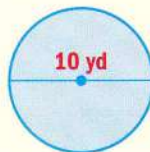
▶ **Answer** The circumference of the circle is about 31.4 yards.

EXERCISES

Find the circumference of the circle described.

14. diameter = 5 m

15. diameter = 35 in.

16. radius = 3 yd

17. diameter = 45 ft

18. radius = 24 in.

19. radius = 6 m

20. Trees The trunk of a tree has a circumference of about 75 inches. Find the diameter of the tree to the nearest inch.

Area of a Circle

EXAMPLE

Find the area of the circle.

$A = \pi r^2$

$\approx (3.14)(4)^2$

$= 50.24$

8 ft
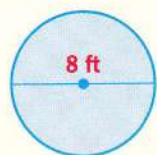
▶ **Answer** The area of the circle is about 50.24 square feet.

EXERCISES

Find the area of the circle described.

21. diameter = 100 cm　　　**22.** diameter = 42 mm　　　**23.** radius = 47 m

24. Karate Make a circle graph to represent the karate data shown below.

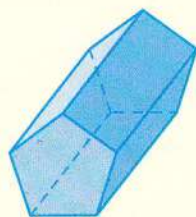| Number of Karate Students at Each Level					
Black Belt	**Red Belt**	**Blue Belt**	**Green Belt**	**Orange Belt**	**White Belt**
3	5	13	20	12	7

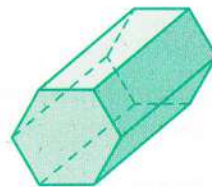**Solid Figures**

EXAMPLE

Classify the solid. Then count the number of faces, edges, and vertices.

▶ **Answer** The solid is a pentagonal prism because it has 2 parallel pentagonal bases. It has 7 faces, 15 edges, and 10 vertices.

EXERCISES

25. Classify the solid. Then count the number of faces, edges, and vertices.
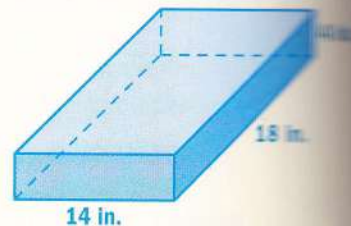
10.6 Surface Area of a Prism

EXAMPLE

Find the surface area of the rectangular solid.

STEP 1 **Find** the area of each face.

Area of the top or bottom: $14 \cdot 18 = 252$

Area of the front or back: $4 \cdot 14 = 56$
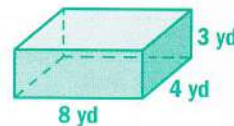
Area of the left or right: $4 \cdot 18 = 72$

STEP 2 **Add** the areas of all six faces to find the surface area:

$S = 2(252) + 2(56) + 2(72) = 760.$

▶ **Answer** The surface area of the rectangular solid is 760 square inches.

EXERCISES

26. Find the surface area of the rectangular prism shown.

10.7 Volume of a Prism

EXAMPLE

Find the volume of the rectangular solid.

$V = lwh$

$\quad = 5 \cdot 8 \cdot 10$

$\quad = 400$

▶ **Answer** The volume of the rectangular prism is 400 cubic meters.
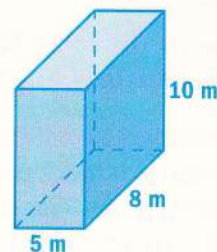
EXERCISES

27. A rectangular prism has a length of 7 meters, a width of 5 meters, and a height of 3 meters. Find the volume of the prism.

28. Juice Boxes A juice box is a rectangular prism with a volume of 8.75 cubic inches. The juice box is 2.5 inches wide and 1 inch deep. How tall is the juice box?