

1.5**Rewriting Equations and Formulas**

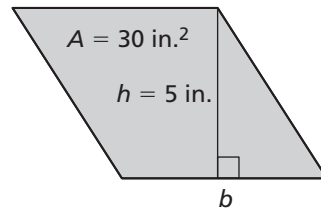
For use with Exploration 1.5

Essential Question How can you use a formula for one measurement to write a formula for a different measurement?

1 EXPLORATION: Using an Area Formula

Work with a partner.

- a. Write a formula for the area A of a parallelogram.



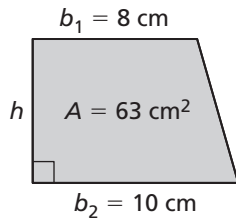
- b. Substitute the given values into the formula.
Then solve the equation for b . Justify each step.
- c. Solve the formula in part (a) for b without first substituting values into the formula. Justify each step.
- d. Compare how you solved the equations in parts (b) and (c). How are the processes similar? How are they different?

1.5 Rewriting Equations and Formulas (continued)

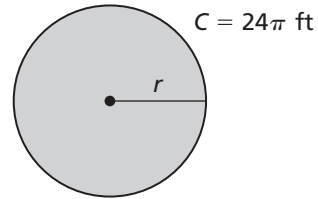
2 **EXPLORATION:** Using Area, Circumference, and Volume Formulas

Work with a partner. Write the indicated formula for each figure. Then write a new formula by solving for the variable whose value is not given. Use the new formula to find the value of the variable.

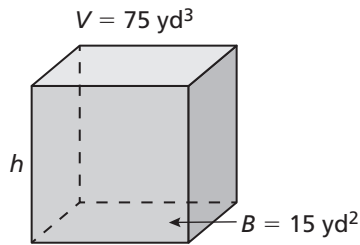
a. Area A of a trapezoid



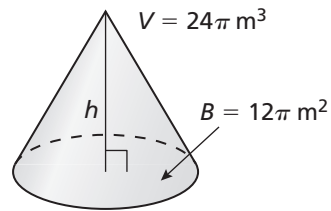
b. Circumference C of a circle



c. Volume V of a rectangular prism



d. Volume V of a cone



Communicate Your Answer

3. How can you use a formula for one measurement to write a formula for a different measurement? Give an example that is different from those given in Explorations 1 and 2.

1.5**Notetaking with Vocabulary**

For use after Lesson 1.5

In your own words, write the meaning of each vocabulary term.

literal equation

formula

Core Concepts**Common Formulas****Temperature** F = degrees Fahrenheit, C = degrees Celsius

$$C = \frac{5}{9}(F - 32)$$

Simple Interest I = interest, P = principal, r = annual interest rate (decimal form), t = time (years)

$$I = Prt$$

Distance d = distance traveled, r = rate, t = time

$$d = rt$$

Notes:

1.5 Notetaking with Vocabulary (continued)**Extra Practice**

In Exercises 1–6, solve the literal equation for y .

1. $y - 2x = 15$

2. $4x + y = 2$

3. $5x - 2 = 8 + 5y$

4. $y + x = 11$

5. $3x - y = -4$

6. $3x + 1 = 7 - 4y$

In Exercises 7–12, solve the literal equation for x .

7. $y = 10x - 4x$

8. $q = 3x + 9xz$

9. $r = 4 + 7x - sx$

10. $y + 4x = 10x - 6$

11. $4g + r = 2r - 2x$

12. $3z + 8 = 12 + 3x - z$

In Exercises 13–16, solve the formula for the indicated variable.

13. Area of a triangle: $A = \frac{1}{2}bh$; Solve for b .

14. Volume of a cone: $V = \frac{1}{3}\pi r^2 h$; Solve for h .

1.5 Notetaking with Vocabulary (continued)

15. Ohm's Law: $I = \frac{V}{R}$; Solve for R .

16. Ideal Gas Law: $PV = nRT$; Solve for R .

17. The amount A of money in an account after simple interest has been earned is given by the formula $A = P + Prt$ where P is the principal, r is the annual interest rate in decimal form, and t is the time in years.

a. Solve the formula for r .

b. The amount of money in an account after interest has been earned is \$1080, the principal is \$1000, and the time is 2 years. What is the annual interest rate?

c. Solve the formula for P .