Vocabulary and Core Concept Check

- 1. VOCABULARY Explain how direct variation equations and inverse variation equations are different.
- 2. DIFFERENT WORDS, SAME QUESTION Which is different? Find "both" answers.

What is an inverse variation equation relating xand y with a = 4?

What is an equation for which y varies inversely with x and a = 4?

What is an equation for which the ratios $\frac{y}{x}$ are constant and a = 4?

What is an equation for which the products xy are constant and a = 4?

Monitoring Progress and Modeling with Mathematics

In Exercises 3-10, tell whether x and y show direct variation, inverse variation, or neither. (See Example 1.)

3.
$$y = \frac{2}{x}$$

4.
$$xy = 12$$

5.
$$\frac{y}{x} = 8$$
 6. $4x = y$

6.
$$4x = y$$

7.
$$y = x + 4$$

8.
$$x + y = 6$$

9.
$$8v = x$$

9.
$$8y = x$$
 10. $xy = \frac{1}{5}$

In Exercises 11-14, tell whether x and y show direct variation, inverse variation, or neither. (See Example 2.)

In Exercises 15–22, the variables x and y vary inversely. Use the given values to write an equation relating x and y. Then find y when x = 3. (See Example 3.)

15.
$$x = 5, y = -4$$
 16. $x = 1, y = 9$

16.
$$x = 1, y = 9$$

17.
$$x = -3, y = 8$$
 18. $x = 7, y = 2$

18.
$$x = 7, y = 2$$

19
$$y = \frac{3}{2} y = 28$$

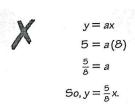
19.
$$x = \frac{3}{4}, y = 28$$
 20. $x = -4, y = -\frac{5}{4}$

21.
$$x = -12, y = -\frac{1}{6}$$
 22. $x = \frac{5}{3}, y = -7$

22.
$$x = \frac{5}{3}, y = -7$$

ERROR ANALYSIS In Exercises 23 and 24, the variables x and y vary inversely. Describe and correct the error in writing an equation relating x and y.

23.
$$x = 8, y = 5$$



24.
$$x = 5, y = 2$$

