

# Practice 5-5

## Direct Variation

Is each equation a direct variation? If it is, find the constant of variation.

1.  $y = 5x$
2.  $8x + 2y = 0$
3.  $y = \frac{3}{4}x - 7$
4.  $y = 2x + 5$
5.  $3x - y = 0$
6.  $y = \frac{3}{5}x$
7.  $-3x + 2y = 0$
8.  $-5x + 2y = 9$
9.  $8x + 4y = 12$
10.  $6x - 3y = 0$
11.  $x - 3y = 6$
12.  $9x + 5y = 0$

The ordered pairs in each exercise are for the same direct variation. Find each missing value.

13.  $(3, 2)$  and  $(6, y)$
14.  $(-2, 8)$  and  $(x, 12)$
15.  $(4, y)$  and  $(16, 12)$
16.  $(x, 8)$  and  $(6, -16)$
17.  $(3, y)$  and  $(9, 15)$
18.  $(2, y)$  and  $(10, 15)$
19.  $(-4, 3)$  and  $(x, 6)$
20.  $(3, y)$  and  $(1.5, 6)$
21.  $(\frac{2}{3}, 2)$  and  $(x, 6)$
22.  $(2.5, 5)$  and  $(x, 9)$
23.  $(4.8, 5)$  and  $(2.4, y)$
24.  $(9, 3)$  and  $(x, -2)$

For the data in each table, tell whether  $y$  varies directly with  $x$ . If it does, write an equation for the direct variation.

25.

| $x$ | $y$ |
|-----|-----|
| 4   | 8   |
| 7   | 14  |
| 10  | 20  |

26.

| $x$ | $y$ |
|-----|-----|
| -3  | -2  |
| 3   | 2   |
| 9   | 6   |

27.

| $x$ | $y$  |
|-----|------|
| 4   | 3    |
| 5   | 4.5  |
| 11  | 13.5 |

28.

| $x$ | $y$  |
|-----|------|
| -2  | -2.8 |
| 3   | 4.2  |
| 8   | 11.2 |

29. Charles's Law states that at constant pressure, the volume of a fixed amount of gas varies directly with its temperature measured in degrees Kelvin. A gas has a volume of 250 mL at  $300^\circ\text{K}$ .

- a. Write an equation for the relationship between volume and temperature.
- b. What is the volume if the temperature increases to  $420^\circ\text{K}$ ?

30. Your percent grade varies directly with the number of correct answers. You got a grade of 80 when you had 20 correct answers.

- a. Write an equation for the relationship between percent grade and number of correct answers.
- b. What would your percent grade be with 24 correct answers?

31. The amount of simple interest earned in a savings account varies directly with the amount of money in the savings account. You have \$1000 in your savings account and earn \$50 in simple interest. How much interest would you earn if you had \$1500 in your savings account?