

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. | <table border="1" style="display: inline-table; vertical-align: middle;"><thead><tr><th>x</th><th>y</th></tr></thead><tbody><tr><td>4</td><td>8</td></tr><tr><td>7</td><td>14</td></tr><tr><td>10</td><td>20</td></tr></tbody></table> | x | y | 4 | 8 | 7 | 14 | 10 | 20 | 26. | <table border="1" style="display: inline-table; vertical-align: middle;"><thead><tr><th>x</th><th>y</th></tr></thead><tbody><tr><td>-3</td><td>-2</td></tr><tr><td>3</td><td>2</td></tr><tr><td>9</td><td>6</td></tr></tbody></table> | x | y | -3 | -2 | 3 | 2 | 9 | 6 | 27. | <table border="1" style="display: inline-table; vertical-align: middle;"><thead><tr><th>x</th><th>y</th></tr></thead><tbody><tr><td>4</td><td>3</td></tr><tr><td>5</td><td>4.5</td></tr><tr><td>11</td><td>13.5</td></tr></tbody></table> | x | y | 4 | 3 | 5 | 4.5 | 11 | 13.5 | 28. | <table border="1" style="display: inline-table; vertical-align: middle;"><thead><tr><th>x</th><th>y</th></tr></thead><tbody><tr><td>-2</td><td>-2.8</td></tr><tr><td>3</td><td>4.2</td></tr><tr><td>8</td><td>11.2</td></tr></tbody></table> | x | y | -2 | -2.8 | 3 | 4.2 | 8 | 11.2 |
|-----|--|---|---|---|---|---|----|----|----|-----|---|---|---|----|----|---|---|---|---|-----|---|---|---|---|---|---|-----|----|------|-----|--|---|---|----|------|---|-----|---|------|
| x | y | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| x | y | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -3 | -2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| x | y | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 4.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 13.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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° K.

- a. Write an equation for the relationship between volume and temperature.
- b. What is the volume if the temperature increases to 420° 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?