

**Do you know HOW?**

Each rate of change is constant. Find the rate of change and explain what it means.

1. **Studying for a Test**

Study Time (h)	Grade
5	85
6	87
7	89
8	91

2. **Distance a Car Travels**

Time (s)	Distance (m)
3	75
6	150
9	225
12	300

Find the slope of the line that passes through each pair of points.

3. (7, 3), (5, 1) 4. (-2, 1), (3, 6)
5. (6, -4), (6, 6) 6. (2, 5), (-8, 5)

Tell whether each equation is a direct variation. If it is, find the constant of variation.

7. $y = 3x$
8. $5x + 3 = 8y + 3$
9. $-3x - 35y = 14$

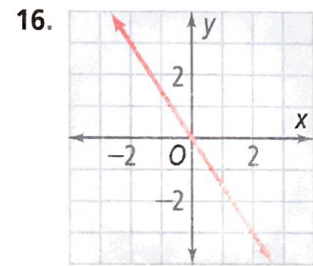
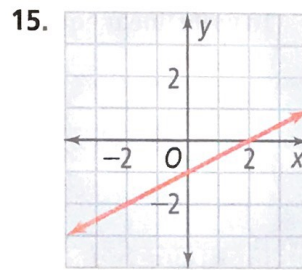
Find the slope and y -intercept of the graph of each equation.

10. $y = \frac{1}{5}x + 3$
11. $3x + 4y = 12$
12. $6y = -8x - 18$

13. **Credit Cards** In 2000, people charged \$1,243 billion on the four most-used types of credit cards. In 2005, people charged \$1,838 billion on these same four types of credit cards. What was the rate of change?

14. **Bicycling** The distance a wheel moves forward varies directly with the number of rotations. Suppose the wheel moves 56 ft in 8 rotations. What distance does the wheel move in 20 rotations?

Write an equation in slope-intercept form of each line.



Graph each equation.

17. $y = 4x - 3$
18. $y + 3 = \frac{1}{2}(x + 2)$

Write an equation in point-slope form for the line through the given point and with the given m .

19. (2, -2); $m = -\frac{1}{2}$
20. (4, 0); $m = 4$

Write an equation of the line that passes through each pair of points.

21. (4, -2) and (8, -6)
22. (-1, -5) and (2, 10)

Do you UNDERSTAND?

23. **Writing** Describe two methods you can use to write an equation of a line given its graph.
24. **Vocabulary** How can you find the y -intercept of the graph of a linear equation?
25. **Reasoning** Can you graph a line if its slope is undefined? Explain.
26. **Business** A salesperson earns \$18 per hour plus a \$75 bonus for meeting her sales quota. Write and graph an equation that represents her total earnings, including her bonus. What does the independent variable represent? What does the dependent variable represent?