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Module 8 Writing Linear Equations of
Two Variables
Lesson 1 Finding Slope



**independent
practice**

Find the slope of the line passing through the given points.

1. (6, -4) and (1, 2)

$$\underline{-\frac{6}{5}}$$

2. (5, -6) and (2, 5)

$$\underline{-\frac{11}{3}}$$

3. (1, 1) and (2, -4)

$$\underline{-5}$$

4. (-5, -2) and (-1, -9)

$$\underline{-\frac{7}{4}}$$

5. (-1, 0) and (0, 7)

$$\underline{7}$$

6. (4, 0) and (7, -2)

$$\underline{-\frac{2}{3}}$$

7. (-1, -2) and (3, -2)

$$\underline{0}$$

8. (4, -4) and (8, 9)

$$\underline{\frac{13}{4}}$$

9. (-2, -2) and (1, 10)

$$\underline{4}$$

10. (-7, 2) and (6, -1)

$$\underline{-\frac{3}{13}}$$

11. (5, -3) and (5, 0)

$$\underline{\text{undefined}}$$

12. (-6, 8) and (-2, 2)

$$\underline{-\frac{3}{2}}$$

Find the slope of a line:

13. parallel to the line through (3, -3) and (1, -2).

$$\underline{-\frac{1}{2}}$$

14. perpendicular to the line through (4, -1) and (6, -5).

$$\underline{\frac{1}{2}}$$

15. perpendicular to the line through (5, -4) and (4, 2).

$$\underline{\frac{1}{6}}$$

16. parallel to the line through (1, 6) and (3, 4).

$$\underline{-1}$$

17. parallel to the line through (-2, 3) and (-7, 5).

$$\underline{-\frac{2}{5}}$$

18. perpendicular to the line through (0, -3) and (4, 3).

$$\underline{-\frac{2}{3}}$$

19. parallel to the line through (2, -7) and (-1, 6).

$$\underline{-\frac{13}{3}}$$

20. perpendicular to the line through (-3, 2) and (7, -2).

$$\underline{\frac{5}{2}}$$

Journal

1. A student says the slope of a line passing through the points $(-2, 5)$ and $(4, 7)$ is equal to the ratio $\frac{7-5}{4-2}$. Is this correct? Justify your answer.
2. What are some meanings of the word slope?
3. Suppose a line with a slope of 9 indicates the relationship between the altitude (in feet) and the time (in seconds) for an airplane. Explain what this could mean.
4. There is a road sign on a hill picturing a truck sitting on top of a triangle. Below this sign, another sign says, "8% grade next 2 miles." Explain how an 8% grade of a hill is related to the slope of a line.
5. Compare a line with a slope of 5 and a line with a slope of $\frac{1}{5}$. Explain how they are alike and how they are different. Which is steeper?

Cumulative Review

Solve for y .

1. $2x + 4y > 2y + 6x$

$y > 2x$

2. $7y - 2x < 3y - 8 + 6x$

$y < 2x - 2$

3. $5y \geq 3x + 6 - y + 4x + 3y$

$y \geq \frac{7}{3}x + 2$

4. $2y^2 \geq 18x^4$

$y \geq \pm 3x^2$

5. $\frac{5}{2}y + \frac{1}{2}x < 10$

$y < -\frac{1}{5}x + 4$

6. $-4y + x^2 \leq x + 4$

$y \geq \frac{1}{4}x^2 - \frac{1}{4}x - 1$

7. $y + 5 > 6x + 2$

$y > 6x - 3$

8. $19x + 4y - 3x < 0$

$y < -4x$

9. $3 + 3x - 5y \geq 16$

$y \leq \frac{3}{5}x - \frac{13}{5}$

10. $x + y + 5 \leq 4x - 3y + 2x + 2y + x + 3$

$y \leq 3x - 1$

Possible Journal Response

1. No. The denominator should be $4 - (-2)$. You are to find the difference in the x -coordinates, and the x -coordinate of the first point is -2 , not 2 .
2. Outside of math, slope can mean a hill or the steepness of a hill, the pitch of a roof or the difficulty of a golf course. In math, slope describes the steepness of a line; it is the ratio rise to run.
3. A slope of 9 could indicate that the airplane is rising at a rate of 9 feet per second.
4. An 8% grade means that for every 100 feet of horizontal change there is a vertical change of 8 feet.
5. The way the lines are alike is that they both have a positive slope. The differences are: the line with a slope of 5 has a rise of 5 and a run of 1, and the line with a slope of $\frac{1}{5}$ has a rise of 1 and a run of 5. One line is steeper than the other line. The line with a slope of 5 is steeper than the line with a slope of $\frac{1}{5}$.