

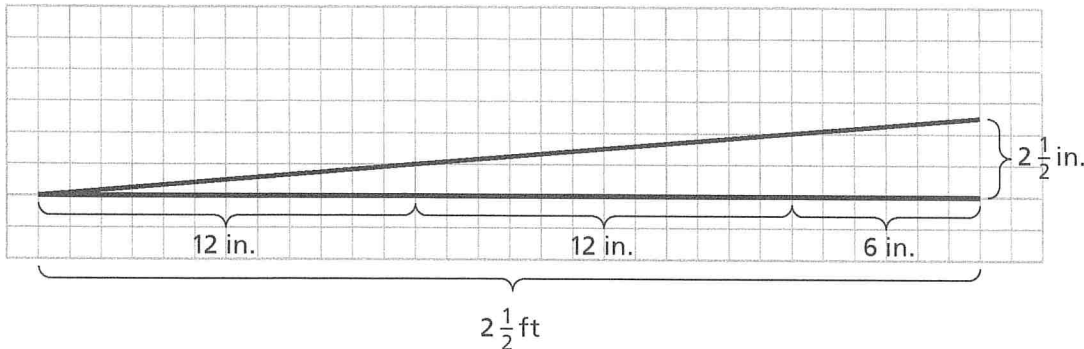


Name _____

Finding Slope

For safety reasons, a wheelchair ramp should have a rise of 1 inch for every 12 inches of ramp length. Daniel plans to build a wheelchair ramp that will meet this specification.

Use this information and the diagram to answer Exercises 1–2.



1. What is the slope of a wheelchair ramp in which there is 1 inch of rise for every 12 inches of run? Remember: The change in vertical distance is the rise. The change in horizontal distance is the run.

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\square}{\square}$$

2. The wheelchair ramp that Daniel plans to build will be $24\frac{1}{2}$ feet long. At its highest point, what will be the height of the ramp?

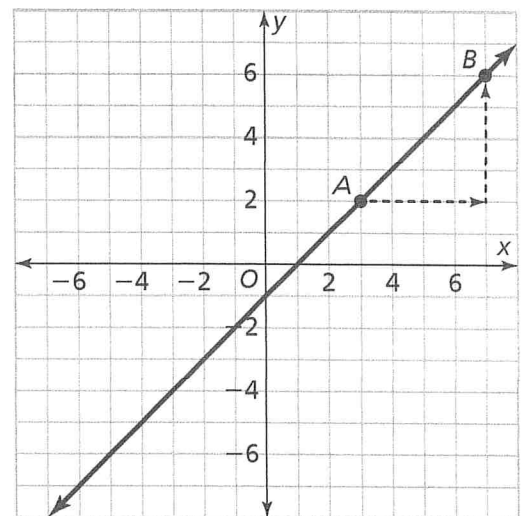
Use the graph of line AB to answer Exercises 3–5.

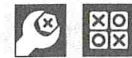
3. What ordered pair, (x_1, y_1) , represents point A ?

4. What ordered pair, (x_2, y_2) , represents point B ?

5. Use the x - and y -coordinates of these two points to find the slope of line AB .

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{\square}{\square} = \frac{\square}{\square} = \square$$





Finding Slope (continued)

Find the slope of a line that contains the two given points.

6. $(-2, 6), (4, 3)$

7. $(-2, -3), (3, 4)$

8. $(5, 7), (-1, 2)$

9. $(-4, -1), (-2, -7)$

10. $(4, 3), (-1, -8)$

11. $(-1, -5), (-2, -7)$

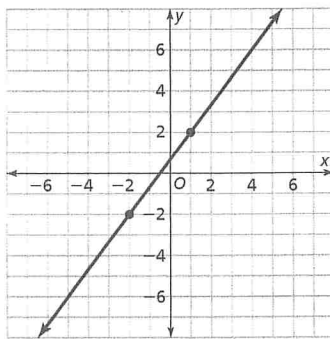
12. $(2, 3), (8, 12)$

13. $(5, 5), (-5, -5)$

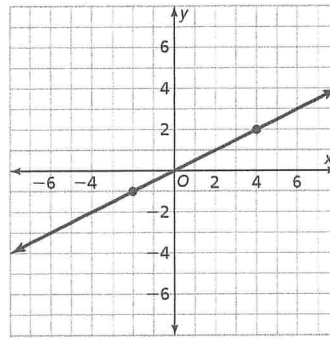
14. $(-4, 8), (3, -6)$

Find the slope of each line.

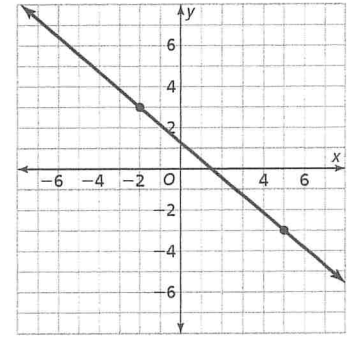
15.



16.



17.



18. Cherries are priced at \$5.00 a pound in Devon's supermarket. What is the slope of a line that represents this situation? _____

19. **Reasoning** Could a straight line contain all three of these points? Explain your answer. $(-1, 2)$ $(1, -3)$ $(0, -4)$

Solving Systems of Equations by Substitution

Use substitution to solve the system. $y - 4x = 2$, $y - 2x = 10$

1. Write the first equation in slope-intercept form.

$$y - 4x = 2$$

Solve the first equation for y .

$$y - 4x + \underline{\hspace{2cm}} = 2 + \underline{\hspace{2cm}}$$

Add $4x$ to both sides.

$$y = \underline{\hspace{2cm}} + 2$$

Write in slope-intercept form.

2. Substitute the expression obtained in Exercise 1 into the second equation for y .

$$y - 2x = 10$$

$$\underline{\hspace{2cm}} - 2x = 10$$

3. Solve the equation obtained in Exercise 2 to find the value of the variable, x .

$$4x + 2 - 2x = 10$$

Add like terms.

$$\underline{\hspace{2cm}} + 2 = 10$$

$$\underline{\hspace{2cm}} + 2 + \underline{\hspace{2cm}} = 10 + \underline{\hspace{2cm}}$$

Add -2 to both sides.

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\frac{2x}{\square} = \frac{8}{\square}$$

Divide both sides by 2.

$$x = \underline{\hspace{2cm}}$$

4. Substitute the solution in Exercise 3 into the equation from Exercise 1 to find the value of the other variable, y .

$$y = 4x + 2$$

$$y = 4(\underline{\hspace{2cm}}) + 2$$

$$y = \underline{\hspace{2cm}} + 2$$

$$y = \underline{\hspace{2cm}}$$

The solution is $x = \underline{\hspace{2cm}}$, $y = \underline{\hspace{2cm}}$.

Solving Systems of Equations by Substitution (continued)

5. Check. Substitute the solution into both equations.

$$y - 4x = 2$$

$$\underline{\hspace{2cm}} - 4(\underline{\hspace{2cm}}) = 2$$

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = 2$$

$$\underline{\hspace{2cm}} = 2$$

$$y - 2x = 10$$

$$\underline{\hspace{2cm}} - 2(\underline{\hspace{2cm}}) = 10$$

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = 10$$

$$\underline{\hspace{2cm}} = 10$$

Use substitution to solve each system of equations.

6. $2x + y = 18$

$$2x = 14$$

7. $5x + 4y = 30$

$$4x = 8$$

8. $x + y = 16$

$$3x = 24$$

9. $x + y = 80$

$$4y = 20$$

10. $4x + 2y = 10$

$$5x = -15$$

11. $x + y = 20$

$$x + y = 12$$

12. $x + 3y = 0$

$$27y = -9x$$

13. $x + y = 150$

$$5x - y = 24$$

14. $y = x + 5$

$$y = -4x$$

15. $x + 6y = 20$

$$6x + 36y = 120$$

16. $x + y = -32$

$$3x + 3y = -12$$

17. $x - y = 4$

$$7.5x + 5.5y = 446$$

18. Jerry took a 25-question quiz worth a total of 65 points. There were y three-point questions and x two-point questions. Use substitution to solve the system of equations to find how many of each type of question was on the quiz.

$$x + y = 25$$

$$2x + 3y = 65$$