



Vocabulary

Review

1. Write each sentence as an *equation*.

The sum of x and y is eight.

The product of p and q is seven.

The square root of y , cubed, is two.

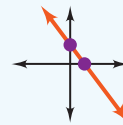
Vocabulary Builder

intercept (noun) IN tur sept

Related Words: x -intercept, y -intercept

Definition: An **intercept** of a line is a point where the line crosses an axis.

intercepts



Use Your Vocabulary

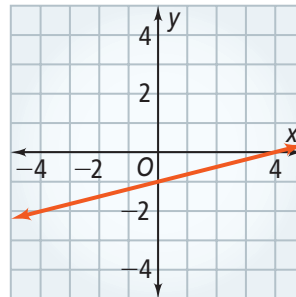
Use the graph at the right. Write T for *true* or F for *false*.

2. The x -intercept of the line is $(4, 0)$.

3. The x -intercept of the line is $(0, 4)$.

4. The y -intercept of the line is $(-1, 0)$.

5. The y -intercept of the line is $(0, -1)$.



Take note

Concept Summary Writing Equations of Lines

Slope-Intercept Form

$$y = mx + b$$

Use this form when you know the slope and the y -intercept.

Point-Slope Form

$$y - y_1 = m(x - x_1)$$

Use this form when you know the slope and a point, or when you know two points.

Standard Form

$$Ax + By = C$$

A , B , and C are real numbers.
 A and B cannot both be zero.

6. Write **I** if the equation is in *slope-intercept form*, **P** if it is in *point-slope form*, or **S** if it is in *standard form*.

$r = 5s + 7$ $8m + 6n = 2$ $y - 3 = x - 1$ $p = q + 9$



Problem 1 Writing an Equation Given a Point and the Slope

Got It? What is an equation of the line through $(-7, 1)$ with slope -3 ?

7. Complete the model to write the equation in point-slope form.

Point-Slope Form $(y - y_1) = m \cdot (x - x_1)$

Write $(y - \square) = \square \cdot (x - \square)$

8. Now write the equation.



Problem 2 Writing an Equation Given Two Points

Got It? A line passes through $(-5, 0)$ and $(0, 7)$. What is an equation of the line in point-slope form?

9. Circle the slope of the line through the points $(-5, 0)$ and $(0, 7)$.

$\frac{-7}{5}$ $\frac{5}{-7}$ $\frac{5}{7}$ $\frac{7}{5}$

10. Now write the equation of the line in point-slope form.



Problem 3 Writing an Equation in Standard Form

Got It? What is an equation of the line $y = 9.1x + 3.6$ in standard form?

11. **Error Analysis** Karina made two errors while writing $y = 9.1x + 3.6$ in standard form without decimals. What are Karina's errors? Explain how to correct them.

~~Karina~~

~~$y = 9.1x + 3.6$~~

~~$10y = 10(9.1x + 3.6)$~~

~~$10y = 91x + 3.6$~~

12. Now write the equation in standard form.



Problem 4 Graphing an Equation Using Intercepts

Got It? What are the intercepts of $2x - 4y = 8$?

13. Find each intercept.

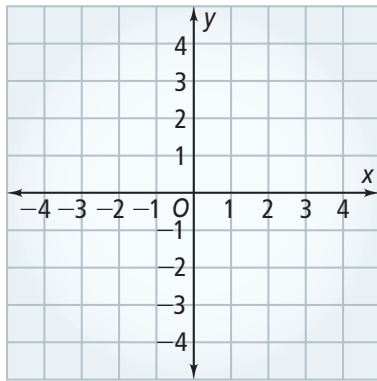
$$2x - 4y = 8 \quad \leftarrow \text{Write the original equation.} \rightarrow \text{[]} = \text{[]}$$

$$2x - 4 \cdot \text{[]} = 8 \quad \leftarrow \text{Substitute 0 for the variable.} \rightarrow 2 \cdot \text{[]} - 4y = 8$$

$$2x = \text{[]} \quad \leftarrow \text{Simplify.} \rightarrow \text{[]} = 8$$

$$x = \text{[]} \quad \leftarrow \text{Simplify.} \rightarrow y = \text{[]}$$

14. Now plot the intercepts and draw the line.



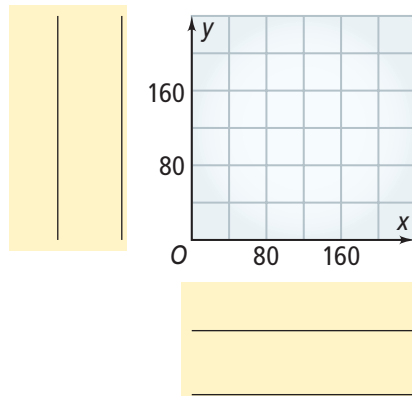
Problem 5 Drawing and Interpreting a Linear Graph

Got It? The office manager of a small office ordered 140 packs of printer paper. Based on average daily use, she knows that the paper will last about 80 days. What graph represents this situation?

15. Complete the table of values.

Days	Packs of Printer Paper Used
0	[]
[]	140

16. Graph the situation. Label the graph.





Problem 6 Writing Equations of Parallel and Perpendicular Lines

Got It? What is the equation, in slope-intercept form, of the line through $(-4, 2)$ and parallel to $4x + 2y = 7$?

17. Circle the slope of the line $4x + 2y = 7$.

$-\frac{7}{2}$ -2 2 $\frac{7}{2}$

18. Circle the form you will use to write the equation.

Slope-Intercept Form	Point-Slope Form	Standard Form
$y = mx + b$	$y - y_1 = m(x - x_1)$	$Ax + By = C$

19. Now write and simplify the equation.



Lesson Check • Do you UNDERSTAND?

If the intercepts of a line are $(a, 0)$ and $(0, b)$, what is the slope of the line?

20. Use the points to calculate the slope.

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{(b - \square)}{(0 - \square)} = \frac{\square}{\square}$$

21. The slope of the line through $(a, 0)$ and $(0, b)$ is \square .



Math Success

Check off the vocabulary words that you understand.

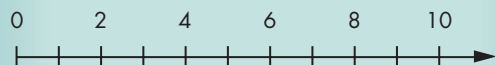
point-slope form

slope-intercept form

standard form

Rate how well you can *write forms of linear equations*.

Need to review



Now I get it!