

Writing Slope-Intercept Equations

Homework

Name Key
Date _____ Period _____

Given one of the representations below, find the other two.

Table	Graph	Equation											
1. <table border="1"> <thead> <tr> <th>x</th><th>y</th></tr> </thead> <tbody> <tr> <td>-4</td><td>3</td></tr> <tr> <td>-4</td><td>0</td></tr> <tr> <td>-4</td><td>-3</td></tr> </tbody> </table>	x	y	-4	3	-4	0	-4	-3	<p>A coordinate plane showing a vertical line passing through the y-axis at x = -4. Three points are plotted on the line at y = 3, 0, and -3. A checkmark is present near the bottom-left corner of the grid.</p>	<p>A Vertical m: undefined $x = -4$</p> <p>b: DNE</p>			
x	y												
-4	3												
-4	0												
-4	-3												
2. <table border="1"> <thead> <tr> <th>x</th><th>y</th></tr> </thead> <tbody> <tr> <td>-4</td><td>0</td></tr> <tr> <td>0</td><td>-2</td></tr> <tr> <td>4</td><td>-4</td></tr> </tbody> </table> <p>$y = mx + b$</p>	x	y	-4	0	0	-2	4	-4	<p>A coordinate plane showing a line passing through the points (-4, 0), (0, -2), and (4, -4). The line has a negative slope and a y-intercept of -2.</p>	$m: \frac{-2}{4} = -\frac{1}{2}$ $b: -2$ $y = -\frac{1}{2}x - 2$			
x	y												
-4	0												
0	-2												
4	-4												
3. <table border="1"> <thead> <tr> <th>x</th><th>y</th></tr> </thead> <tbody> <tr> <td>-2</td><td>1</td></tr> <tr> <td>0</td><td>2</td></tr> <tr> <td>2</td><td>3</td></tr> </tbody> </table> <p>$y = mx + b$</p>	x	y	-2	1	0	2	2	3	<p>A coordinate plane showing a line passing through the points (-2, 1), (0, 2), and (2, 3). The line has a positive slope of 1/2 and a y-intercept of 2.</p>	<table border="1"> <thead> <tr> <th>tab^e</th><th>$m: \frac{\Delta y}{\Delta x}$</th><th>$\frac{1}{2}$</th></tr> </thead> </table> <p>b: 2</p> $y = \frac{1}{2}x + 2$	tab ^e	$m: \frac{\Delta y}{\Delta x}$	$\frac{1}{2}$
x	y												
-2	1												
0	2												
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tab ^e	$m: \frac{\Delta y}{\Delta x}$	$\frac{1}{2}$											

Writing Equations WE3

4. Amy opened her bank account with \$100. She adds \$30 each month.

rate
 DV IV
 $y = mx + b$
 X: months
 Y: \$

- a. Identify the slope and y-intercept.

$$m: 30 \quad y\text{-int: } (0, 100)$$

- b. Write the equation of the line.

$$y = 30x + 100$$

- c. How much will Amy have in her account after 4 years (with no interest)?

$$f(x) = 48 \quad y = 30(48) + 100 \quad y = 1540$$

$$4 \times 12 = 48 \text{ months}$$

1540

- d. When will Amy have \$730 in her account?

$$730 = 30x + 100 \quad \frac{730 - 100}{30} = \frac{630}{30} \quad 21 = x$$

21 months

5. David started a new diet when he weighed 270 pounds. He lost an average of 3 pounds each week.

X: weeks

Y: pounds

- a. Identify the slope and y-intercept.

$$m: -3 \quad y\text{-int: } (0, 270)$$

- b. Write the equation of the line.

$$y = -3x + 270 \text{ or } y = 270 - 3x$$

- c. How long did it take him to reach 180 pounds?

$$180 = -3x + 270 \quad \frac{180 - 270}{-3} = \frac{-90}{-3} \quad x = 30$$

30 weeks

Create a situation for the given slope and y-intercept.

6. slope = 10; (0, 25)

membership fee of \$25
then \$10 per month

7. slope = -5; (0, 500)

start with \$500 in savings
then spend \$5 a week on coffee

8. slope = 4; (0, 0)

Babysitting your little sister your parents will give you \$4 an hour

Write an equation for the line with the given slope and y-intercept.

9. slope = 1; (0, 10)

$$y = x + 10$$

10. slope = 0; (0, -3)

$$y = -3$$

11. slope = $\frac{2}{5}$; (0, $-\frac{3}{5}$)

$$y = \frac{2}{5}x - \frac{3}{5}$$

12. m = 20; b = 100

$$y = 20x + 100$$

13. m = -3; b = 0

$$y = -3x$$

14. m = -1; b = -7

$$y = -x - 7$$