

Name: _____

Sec. 5.2: Use Linear Equations in Slope-Intercept Form

Writing an equation of a line in slope-intercept form:

- Identify the slope m .
- Find the y-intercept.
- Write an equation using $y = mx + b$.

Examples

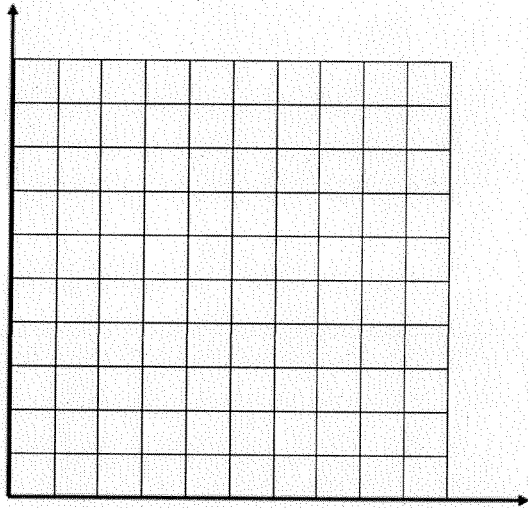
1. Write an equation of the line that passes through the point $(-1, 1)$ and has a slope of 4.

2. Write an equation of the line that passes through the points $(-4, 1)$ and $(2, 13)$.

3. Write an equation for the linear function f with the given values: $f(0) = 3$ and $f(2) = -5$.

4. The Aeck Two Oh Company has noticed that when it prices its deluxe water bottles at \$8 each, it sells 2,800 per month and when priced at \$10 it sells 2,200 per month. If the relationship between price and sales is linear, predict the monthly sales if the price is set at \$14.

5. Mike belongs to a hiking club that charges a membership fee plus \$10 per hike. After going on 5 hikes, he has paid a total of \$95. Write an equation that gives the total cost as a function of the number of hikes he has joined, and then graph that equation.



6. Use the verbal statement below to complete the table, equation, and graph.

VERBAL: Bob has one dollar. Each week he makes 2 dollars for an allowance.

TABLE	EQUATION	GRAPH										
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 50%;">(weeks)</th> <th style="width: 50%;">(dollars)</th> </tr> </thead> <tbody> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>3</td><td></td></tr> </tbody> </table>	(weeks)	(dollars)	0		1		2		3		<p style="text-align: center;">Write the rule.</p> <p>$y =$</p> <p>Initial Value =</p> <p>Rate of Change =</p>	
(weeks)	(dollars)											
0												
1												
2												
3												

Sec. 5.2 Practice Problems

Write an equation of the line that passes through the given points and has the given slope m .

1. $(5, 1)$; $m = 2$

2. $(5, -5)$; $m = -2$

3. $(-3, -11)$; $m = \frac{1}{2}$

Write an equation of the line that passes through the given points.

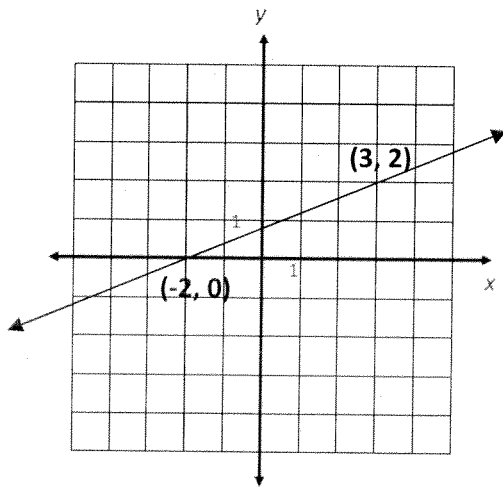
4. $(3, 2)$, $(4, 9)$

5. $(-2, 8)$, $(-6, 0)$

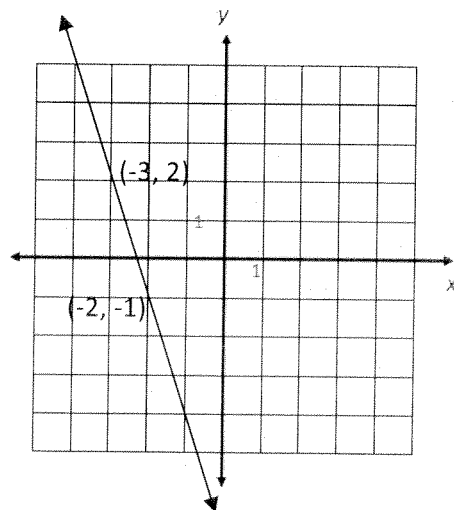
6. $(-5, \frac{3}{4})$, $(-2, -\frac{3}{4})$

Write an equation of the line shown.

7.



8.



Write an equation for the linear function f that has the given values.

9. $f(-2) = -2, f(4) = -8$

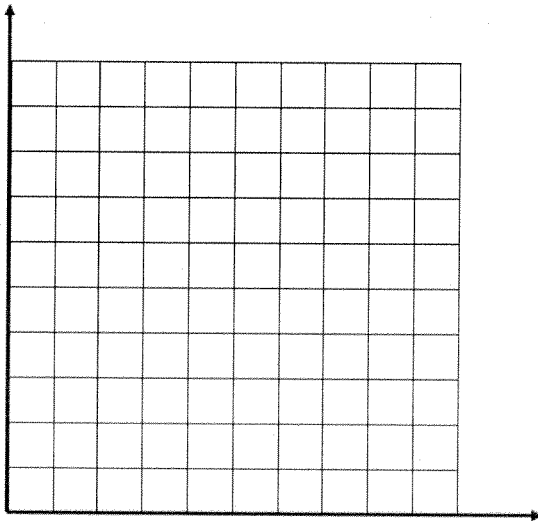
10. $f(-4) = -8, f(-8) = -11$

11. $f(-5) = 9, f(11) = -39$

12. Decide whether the three points lie on the same line. Explain how you know. If the points do lie on the same line, write an equation of the line that passes through all three points.

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

13. The cost of joining a local golf club has been increasing \$25 per year. Sue just paid her annual membership fee of \$525 after having originally joined 6 years ago. Write an equation that gives the cost of membership as a function of how long she has been a member, and then graph that equation.



14. Hewey, Dewey, and Lewey are saving money for the new iPad. Help them keep track of their budget by filling in the blanks!

HEWEY

VERBAL	NUMERIC	GRAPHIC														
<p>Hewey currently has no money saved and decides to save \$3 each day.</p> <p>Initial value =</p> <p>Rate of change =</p> <p>Equation $y =$</p>	<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Time (days)</th> <th style="width: 50%;">Amount Saved</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0</td><td></td></tr> <tr><td style="text-align: center;">1</td><td></td></tr> <tr><td style="text-align: center;">2</td><td></td></tr> <tr><td style="text-align: center;">3</td><td></td></tr> <tr><td style="text-align: center;">37</td><td></td></tr> <tr><td></td><td style="text-align: center;">100</td></tr> </tbody> </table>	Time (days)	Amount Saved	0		1		2		3		37			100	<p>Plot the points and label the graph.</p>
Time (days)	Amount Saved															
0																
1																
2																
3																
37																
	100															

DEWEY

VERBAL	NUMERIC	GRAPHIC														
<p>Dewey currently has _____ and saves _____</p> <p>Initial value =</p> <p>Rate of change =</p> <p>Equation $y =$</p>	<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Time (days)</th> <th style="width: 50%;">Amount Saved (\$)</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0</td><td style="text-align: center;">5</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">6</td></tr> <tr><td style="text-align: center;">2</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">3</td><td style="text-align: center;">8</td></tr> <tr><td style="text-align: center;">37</td><td></td></tr> <tr><td></td><td style="text-align: center;">100</td></tr> </tbody> </table>	Time (days)	Amount Saved (\$)	0	5	1	6	2	7	3	8	37			100	<p>Plot the points and label the graph.</p>
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0	5															
1	6															
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3	8															
37																
	100															

LEWEY

VERBAL	NUMERIC	GRAPHIC														
<p>Lewey currently has _____ and saves _____</p> <p>Initial value =</p> <p>Rate of change =</p> <p>Equation $y =$</p>	<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Time (days)</th> <th style="width: 50%;">Amount Saved (\$)</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0</td><td></td></tr> <tr><td style="text-align: center;">1</td><td></td></tr> <tr><td style="text-align: center;">2</td><td></td></tr> <tr><td style="text-align: center;">3</td><td></td></tr> <tr><td style="text-align: center;">37</td><td></td></tr> <tr><td></td><td style="text-align: center;">100</td></tr> </tbody> </table>	Time (days)	Amount Saved (\$)	0		1		2		3		37			100	<p>GRAPHIC</p>
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ANSWERS to Sec. 5.2 Practice Problems

1. $y = 2x - 9$

2. $y = -2x + 5$

3. $y = \frac{1}{2}x - \frac{19}{2}$

4. $y = 7x - 19$

5. $y = 2x + 12$

6. $y = -\frac{1}{2}x - \frac{7}{4}$

7. $y = \frac{2}{5}x + \frac{4}{5}$

8. $y = -3x - 7$

9. $y = -x - 4$

10. $y = \frac{3}{4}x - 5$

11. $y = -3x - 6$

12. Yes; $y = -2x + 3$. Calculate the equation of the line going through two of the points, as in exercises 4-6, and then check if the coordinates of the third point are also a solution for that equation.

13. $C = 25y + 375$

