3. Find the rate of change, explain what it means.

7. Find the slope of the line

8. Find the slope of the line

15. \((-3, 1) (3, -5)\)

18. Find the slope of the line: \((-4, -5) (-9, 1)\)

21. Find the slope of the line: \((0, -1) (1, -6)\)

Find the slope:

22. Find the slope:

23. Find the slope:
<table>
<thead>
<tr>
<th>Find the rate of change:</th>
<th>Find the slope of the line:</th>
</tr>
</thead>
<tbody>
<tr>
<td>28. The cost of group museum tickets is $48 for 4 people and $78 for ten people.</td>
<td>25. (4, 3) (4, -3)</td>
</tr>
</tbody>
</table>
| 26. Find the slope of the line: 
  (-5, \( \frac{1}{2} \)) 
  (-5, 3) | Find the slope of the line: |
| | 31. \((4, \frac{2}{3}), (-2, \frac{2}{3})\) |
| Find the slopes of the sides: | Find x or y: |
| 45. | 51. \((x, 3), (2, 8); \text{slope } = -\frac{5}{2}\) |
| Find the slope: | Find the slope: |
| 63. \((a, -b), (-a, -b)\) | 65. \((2a, b), (c, 2d)\) |
| Do the points lie on the same line? Explain. | 72. A line has slope \( \frac{3}{2} \). Through which two points could this line pass? |
| 66. \(A(1, 3), B(4, 2), C(-2, 4)\) | A. \((24, 19), (8, 10)\)  
B. \((10, 8), (16, 0)\)  
C. \((28, 10), (22, 2)\)  
D. \((4, 20), (0, 17)\) |
<table>
<thead>
<tr>
<th>State the slope and $y$-intercept:</th>
<th>Write the equation of the line:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. $y = x - \frac{5}{4}$</td>
<td>18. $m = -7, b = \frac{1}{3}$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Write an equation in slope intercept form</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Write an equation in slope intercept form</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graph: 34. $Y = 4x - 3$</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Graph: 37. $Y = -\frac{2}{3}x + 2$</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Find the slope and $y$-intercept</th>
</tr>
</thead>
<tbody>
<tr>
<td>46. $-2y = 6(5 - 3x)$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Find the slope and $y$-intercept</th>
</tr>
</thead>
<tbody>
<tr>
<td>45. $2y - 6 = 3x$</td>
</tr>
</tbody>
</table>
33. graph: \( y = -x + 2 \)

Find the slope and y-intercept

47. \( y - d = cx \)

51. \( 2y + 4x = 0 \)

Find the slope and y-intercept then graph

52. \( 3y + 6 = -2x \)

Find the slope and y-intercept then graph

53. \( y + 2 = 5x - 4 \)

Find the slope and y-intercept and graph:

54. \( 4x + 3y = 2x - 1 \)

Find the slope and y-intercept and graph:
| 1. Find the x and y intercepts:  
  \( x + 2y = 18 \) | 4. Find the x and y intercepts:  
  \( -6x + 3y = -9 \) |
|---|---|
| 8. Find the x and y intercepts:  
  \( 7x - 2y = 4 \) | 9. Find the x and y intercepts:  
  \( -8x + 10y = 40 \) |
| 14. graph using x and y intercepts  
  \( x + y = -5 \) | 15. graph using x and y intercepts  
  \( x - y = -7 \) |
| 16. graph using x and y intercepts  
  \( -3x + y = 6 \) | 18. graph using x and y intercepts  
  \( 5x - 3y = 15 \) |
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>23. graph the line $y = 3$ &amp; 24. graph the line $x = -7$</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>25. graph the line $y = -1.5$ &amp; 26. graph the line $x = 4.5$</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>27. write in standard form using integers: $y = 3x + 1$ &amp; 29. write in standard form using integers: $y = \frac{1}{2}x - 3$</td>
<td></td>
</tr>
</tbody>
</table>
|   | 31. write in standard form using integers: 
  \[ y = -\frac{3}{4}x - 4 \] | 33. write in standard form using integers: 
  \[ y = -\frac{7}{2}x + \frac{1}{4} \] |
|---|---|
|   | 34. write in standard form using integers: 
  \[ y = -\frac{2}{5}x + \frac{1}{10} \] | 37. Larry runs at an average rate of 8 mi/h. He walks at an average rate of 3 mi/h. 
  a. define a variable for time spent walking. Define a variable for time spend running. 
  b. Write an equation in standard form to relate the times he could spend running and walking if he travels a distance of 15 miles. |
|   | 45. graph: \( 9 + y = 8 - x \) | 67. What is the slope of \( Ax + By = C \)? |
For #1-9, identify the point and slope then graph

<table>
<thead>
<tr>
<th>Equation 1</th>
<th>Equation 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>( y - 2 = (x - 3) )</td>
<td>( y - 2 = -\frac{3}{2}(x - 3) )</td>
</tr>
<tr>
<td>y-intercept: 2</td>
<td>y-intercept: 2</td>
</tr>
<tr>
<td>slope: 1</td>
<td>slope: -1.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equation 3</th>
<th>Equation 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>( y + 1 = \frac{2}{3}(x + 4) )</td>
<td>( y + 3 = -2(x - 1) )</td>
</tr>
<tr>
<td>y-intercept: 1</td>
<td>y-intercept: 3</td>
</tr>
<tr>
<td>slope: ( \frac{2}{3} )</td>
<td>slope: -2</td>
</tr>
</tbody>
</table>
\[ y - 2 = 3(x + 2) \]

Point\ ________
Slope\ ________

For #10-18 write an equation in point slope form
10. \((3, -4)\) \(m = 6\)
13. \((-2, -7)\) \(m = -\frac{3}{2}\)
18. \((-6, 1)\) \(m = \frac{2}{3}\)

For #19-30, A. write an equation in point slope form; B. write the equation in slope intercept form

22. \((6, -4)\) \((-3, 5)\)

23. \((-1, -5)\) \((-7, -6)\)

24. \((-3, -4)\) \((3, -2)\)

25. \((2, 7)\) \((1, -4)\)
31. Is the data in the table linear? If so, write an equation in point slope and slope intercept form.

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>-3</td>
</tr>
<tr>
<td>5</td>
<td>-9</td>
</tr>
<tr>
<td>9</td>
<td>-17</td>
</tr>
</tbody>
</table>

32. Is the data in the table linear? If so, write an equation in point slope and slope intercept form.

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10</td>
<td>-5</td>
</tr>
<tr>
<td>2.2</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>11</td>
<td>58</td>
</tr>
</tbody>
</table>

33. Is the data in the table linear? If so, write an equation in point slope and slope intercept form.

<table>
<thead>
<tr>
<th>Speed posted over speed limit</th>
<th>Fine $</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>75</td>
</tr>
<tr>
<td>12</td>
<td>95</td>
</tr>
<tr>
<td>15</td>
<td>125</td>
</tr>
<tr>
<td>19</td>
<td>165</td>
</tr>
</tbody>
</table>

37. Write an equation in point slope form.

For #39-53, write an equation in A. point slope form, B. standard form using integers

39. (1, 4) (-1, 1)  

40. (6, -3) (-2, -3)
<table>
<thead>
<tr>
<th>45. (5, -3) (3, 4)</th>
<th>50. (5, 3) (4, 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62. Write an equation in slope intercept form: The line contains the point (1, 3) and has the same y-intercept as $y - 5 = 2(x - 1)$</td>
<td>65. What is the slope of the line $y - 8 = \frac{1}{2}(x + 2)$</td>
</tr>
<tr>
<td>66. Find the y-intercept of the line $y + 3 = 4(x + 3)$</td>
<td>67. What is the x-intercept of the line $y = 3x - 7$</td>
</tr>
<tr>
<td>68. When $y - 1 = -\frac{4}{5}(x - 3)$ is written in standard form using integers, what is the coefficient of $x$?</td>
<td>69. When $y = -\frac{5}{2}x + \frac{2}{3}$ is written in standard form using integers, what is the coefficient of $y$?</td>
</tr>
</tbody>
</table>
For #1-6, find the slope of the line parallel to the graph of each equation.

<table>
<thead>
<tr>
<th></th>
<th>1. $y = \frac{1}{2}x + 2.3$</th>
<th>2. $y = \frac{2}{3}x - 1$</th>
<th>3. $y = x$</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>$y = 6$</td>
<td>5. $3x + 4y = 12$</td>
<td>6. $7x - y = 5$</td>
</tr>
</tbody>
</table>

Are the graphs of the lines parallel? Explain.

|   | 7. $y = 4x + 12$  
$-4x + \frac{3}{2} \cdot y = 21$ | 8. $y = -\frac{3}{2}x + 2$  
$3x + 2y = 8$ | 9. $y = \frac{1}{3}x + 3$  
x - $3y = 6$ |
|---|---------------------|----------------------|------------------|
| 10. | $y = -\frac{1}{2}x + \frac{3}{2}$  
$5x - 10y = 15$ | 11. $y = -3x$  
$21x + 7y = 14$ | 12. $y = \frac{3}{4}x - 2$  
$-3x + 4y = 8$ |

For #13-18 write an equation for a line that is parallel to the given line through the given point.

<table>
<thead>
<tr>
<th></th>
<th>13. $y = 6x - 2$ (0, 0)</th>
<th>14. $y = -3x$ (3, 0)</th>
<th>15. $y = -2x + 3$ (-3, 5)</th>
</tr>
</thead>
</table>
16. \( y = -\frac{7}{2}x + 6 \) (-4, -6)  
17. \( y = 0.5x - 8 \) (8, -5)  
18. \( y = -\frac{2}{3}x + 12 \) (5, -3)

74. Which equation has as its graph a line parallel to the graph \(-2x - 4y = 3\)?
   - F. \( y = -\frac{1}{2}x + 5 \)
   - G. \( y = 2x - 6 \)
   - H. \( y = -2x + 4 \)
   - I. \( y = \frac{1}{2}x - 2 \)

76. Suppose the line through \((x, 6)\) and \((1,2)\) is parallel to the graph of \(2x + y = 3\). Find the value of \(x\). Show your work.

---

Compare the equation in column A with the equation in column B. Choose the best answer.

A. The quantity in column A is greater  
B. The quantity in column B is greater  
C. The two quantities are equal  
D. The relationship cannot be determined from the information given

<table>
<thead>
<tr>
<th>( x )</th>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>77.</td>
<td>The slope of ( y = -5x - 1 )</td>
<td>The slope of ( 10x + 2y = -2 )</td>
</tr>
<tr>
<td>78.</td>
<td>The product of the slopes of ( y = -\frac{4}{3}x + 5 ) and ( 3x + 4y = 12 )</td>
<td>-1</td>
</tr>
<tr>
<td>79.</td>
<td>The slope of ( 6y = 3x + 10 )</td>
<td>2</td>
</tr>
</tbody>
</table>
For #19-24, find the slope of the line perpendicular to the graph of each equation:

<table>
<thead>
<tr>
<th>19. $y = 2x$</th>
<th>20. $y = -3x$</th>
<th>21. $y = \frac{7}{5}x - 2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. $y = -\frac{x}{5} - 7$</td>
<td>23. $2x + 3y = 5$</td>
<td>24. $y = -8$</td>
</tr>
</tbody>
</table>

For #25-30 write an equation for a line that is perpendicular to the given line through the given point:

<table>
<thead>
<tr>
<th>25. $y = 2x + 7$ (0, 0)</th>
<th>26. $y = x - 3$ (4, 6)</th>
<th>27. $y = -\frac{1}{3}x + 2$ (4, 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>28. $3x + 5y = 7$ (-1, 2)</td>
<td>29. $-10x + 8y = 3$ (15, 12)</td>
<td>30. $4x - 2y = 9$ (8, -2)</td>
</tr>
</tbody>
</table>

Tell whether the lines are parallel, perpendicular, or neither. Explain.

<table>
<thead>
<tr>
<th>32. $y = 4x + \frac{3}{4}$</th>
<th>33. $y = \frac{2}{3}x - 6$</th>
<th>34. $y = -x + 5$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y = -\frac{1}{4}x + 4$</td>
<td>$y = \frac{2}{3}x + 6$</td>
<td>$y = x + 5$</td>
</tr>
<tr>
<td></td>
<td>35. ( y = 5x )</td>
<td>( y = -5x + 7 )</td>
</tr>
<tr>
<td>---</td>
<td>-----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>38.</td>
<td>( 2x + y = 2 )</td>
<td>( 2x + y = 5 )</td>
</tr>
<tr>
<td>40.</td>
<td>( 4x - 3y = 36 )</td>
<td>( 3x + 4y = 20 )</td>
</tr>
<tr>
<td>63.</td>
<td>use slopes to determine if the figure drawn is a rectangle.</td>
<td>( )</td>
</tr>
<tr>
<td></td>
<td>![Diagram A]</td>
<td>( )</td>
</tr>
<tr>
<td>68.</td>
<td>determine if the lines are parallel, perpendicular, or neither. ( ax - by = c ) ( -ax + by = d )</td>
<td>( )</td>
</tr>
</tbody>
</table>