

BLC150–Algebra Workshop

Homework 8- Linear Graphs

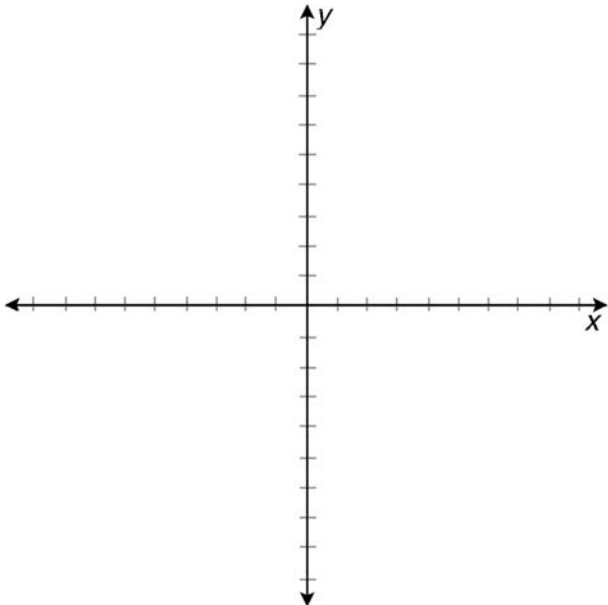
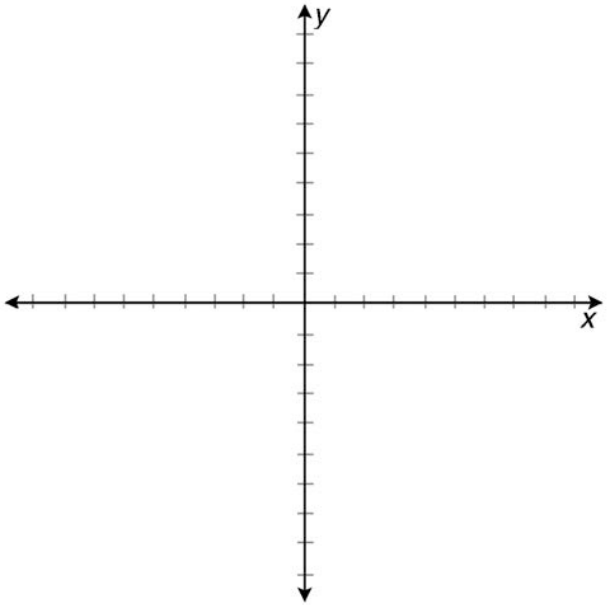
Name: _____

$$y = mx + b,$$

$$m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{y_1 - y_2}{x_1 - x_2}$$

$b = y_{\text{intercept}}$ which means where the line crosses the y-axis. It is technically the point (0, y).

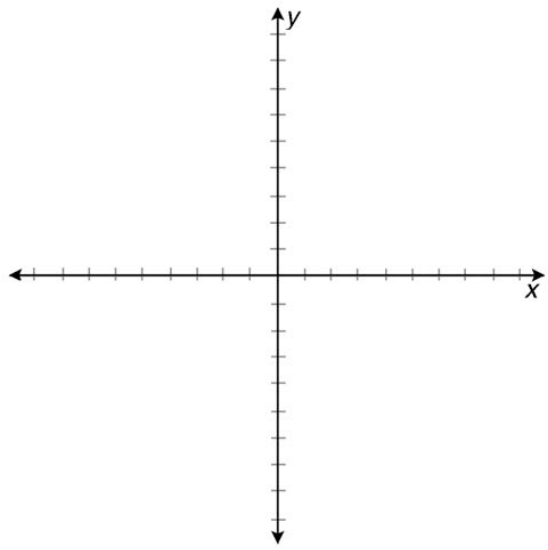
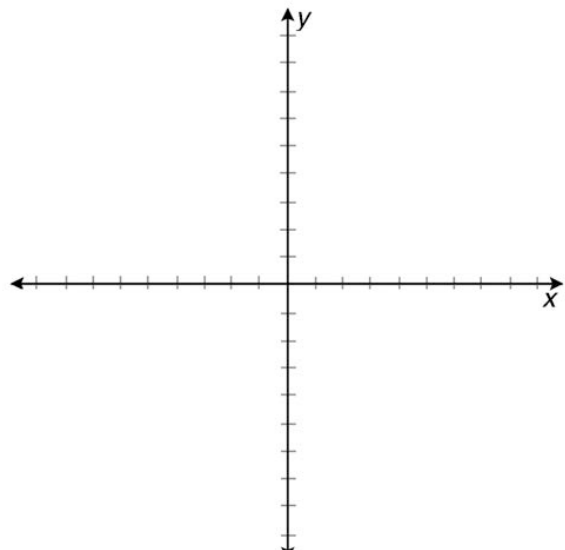
Given 2 points, determine the slope, m .

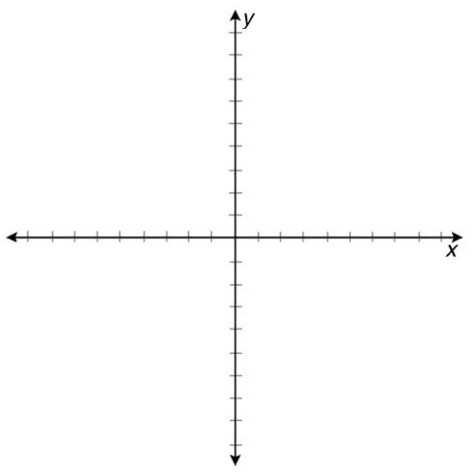
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| 1. (-1, 1) and (1, 5) | 2. (2, -2) and (-4, 1) | 3. (1, 5) and (-1, -3) | 4. (1, 3) and (-1, -5) |
| 5. Graph the line connecting the points for problems 1 and 2. Make sure the slope you found makes sense with your graph. | | 6. Graph the line connecting the points for problems 3 and 4. Make sure the slope you found makes sense with your graph. | |
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| | prose | symbolic | Example 1 | Example 2 |
|-----------------------|---|------------------------|-----------------------------|----------------------------------|
| Perpendicular slopes: | m is perpendicular to any line with a slope of $\frac{-1}{m}$ | $m \perp \frac{-1}{m}$ | $4 \perp \frac{-1}{4}$ | $\frac{2}{3} \perp \frac{-3}{2}$ |
| Parallel slopes: | m is parallel to any line with a slope of m . | $m \parallel m$ | $\frac{3}{1} = \frac{6}{2}$ | $-5 = -5$ |

Fill in the missing numbers in the ordered pairs and identify the slope, m , and the $y_{intercept}$, b .

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| <p>7. $y = 2x + 3$</p> <p>$(0, \quad) (\quad, 0)$</p> <p>$(1, \quad) (\quad, 1)$</p> <p>$m =$</p> <p>$b =$</p> | <p>8. $y = \frac{-1}{2}(x) - 1$</p> <p>$(0, \quad) (\quad, 0)$</p> <p>$(2, \quad) (\quad, -3)$</p> <p>$m =$</p> <p>$b =$</p> | <p>9. $y = 4x + 1$</p> <p>$(0, \quad) (\quad, 0)$</p> <p>$(1, \quad) (\quad, -3)$</p> <p>$m =$</p> <p>$b =$</p> | <p>10. $y = 4x - 1$</p> <p>$(0, \quad) (\quad, 0)$</p> <p>$(1, \quad) (\quad, 5)$</p> <p>$m =$</p> <p>$b =$</p> |
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| <p>11. Graph 7 and 8 below. Make sure that all of the points and slopes that you determined live on their respective lines.</p>  | <p>11. Graph 9 and 10 below. Make sure that all of the points and slopes that you determined live on their respective lines.</p>  |
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| <p>12a. Find the slope, m, for $(3, 1)$ and $(-3, 1)$ and graph the line that connects them on the blank graph to the right.</p> <p>12b. What is the $y_{intercept}$, b, of this line? Is there an $x_{intercept}$?</p> <p>13a. What is the slope between $(3, 3)$ and $(3, -2)$?</p> <p>13b. Is there a $y_{intercept}$ <i>OR</i> $x_{intercept}$? If so, what is it?</p> |  |
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