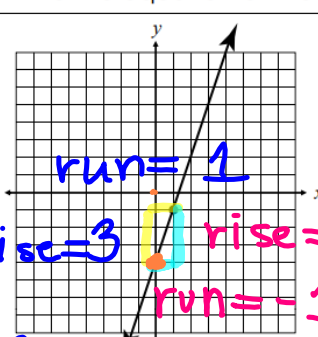
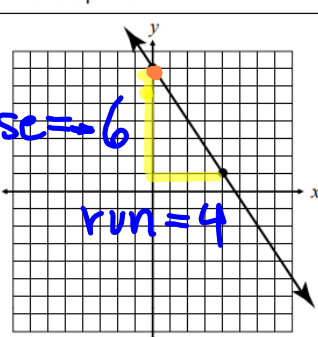
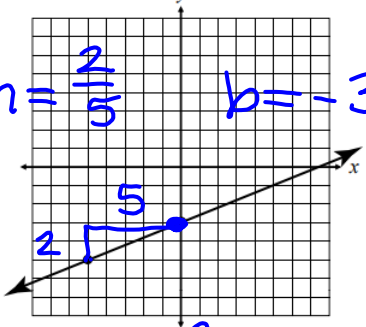
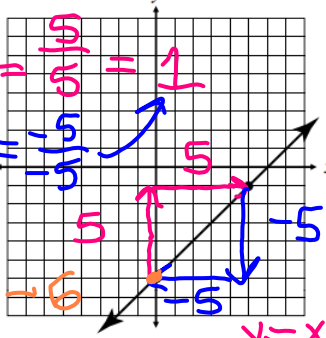
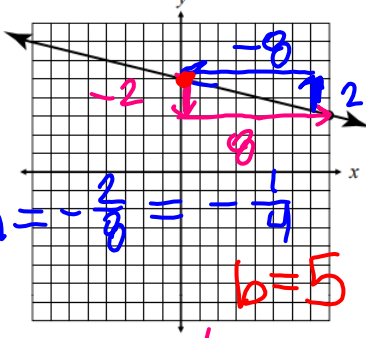
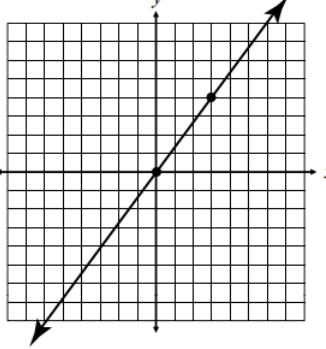


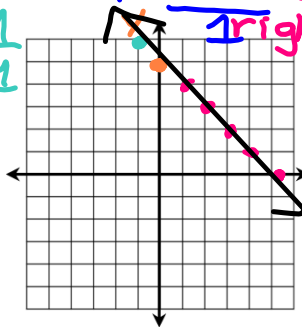
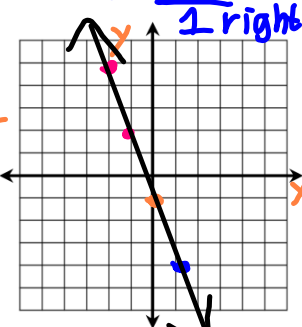
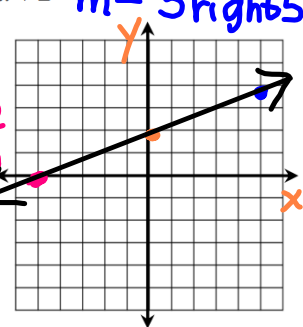
SLOPE-INTERCEPT FORM & GRAPHING

Slope-Intercept Form	<p style="text-align: center;">Linear equations are frequently written in slope-intercept form:</p> <div style="text-align: center; border: 1px solid black; padding: 5px; display: inline-block; margin: 10px;"> $y = mx + b$ </div> <p style="text-align: right; margin-right: 50px;">where graph crosses the ↓ y-axis</p> <p style="text-align: center;">m is the <u>slope</u> and b is the <u>y-intercept</u></p>
Examples	<p>Directions: Given the slope and y-intercept of the line, write the equation in slope-intercept form.</p> <p>1. slope = 2; y-intercept = -1 <u>$y = 2x - 1$</u></p> <p>2. slope = $-\frac{3}{5}$; y-intercept = 4 <u>$y = -\frac{3}{5}x + 4$</u></p> <p>3. slope = -3; y-intercept = 2 _____</p> <p>4. slope = -1; y-intercept = 7 _____</p> <p>5. slope = $\frac{1}{4}$; y-intercept = 0 <u>$y = \frac{1}{4}x$</u> or <u>$y = \frac{1}{4}x + 0$</u></p> <p>6. slope = $-\frac{5}{2}$; y-intercept = -3 _____</p>

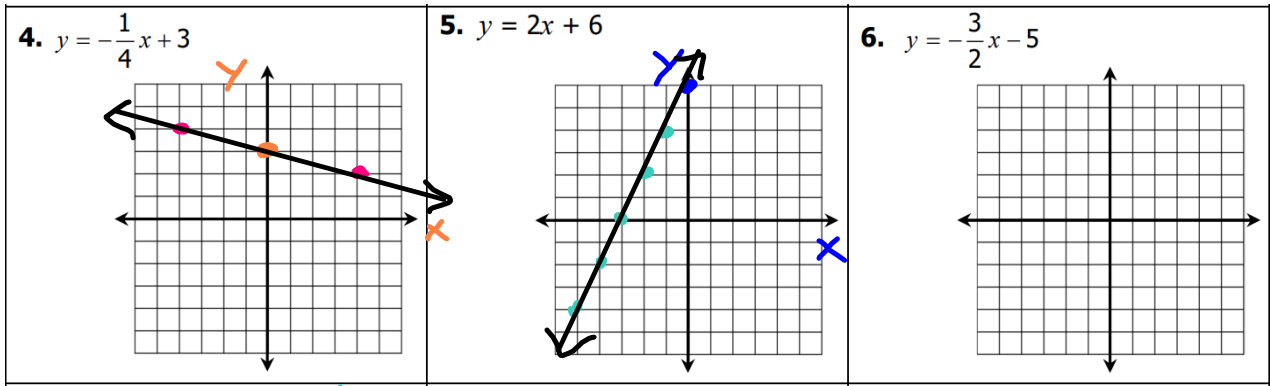
Given a Graph	<p>Directions: Identify the slope and y-intercept of the line on the graph. Then, write the equation of the line in slope-intercept form.</p>
$\frac{-3}{-1} = 3$	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>7.</p>  <p style="text-align: center;">$m = \frac{3}{1} = 3$ $b = -4$</p> <p style="text-align: center;">Equation: <u>$y = 3x - 4$</u></p> </div> <div style="width: 48%;"> <p>8.</p>  <p style="text-align: center;">$m = \frac{6}{4} = -\frac{3}{2}$ $b = 7$</p> <p style="text-align: center;">Equation: <u>$y = -\frac{3}{2}x + 7$</u></p> </div> </div>

<p>9.</p>  <p style="margin-left: 20px;">$m = \frac{2}{5}$ $b = -3$</p> <p>Equation: $y = \frac{2}{5}x - 3$</p>	<p>10.</p>  <p style="margin-left: 20px;">$m = \frac{5}{5} = 1$ $m = \frac{-5}{-5} = 1$</p> <p style="margin-left: 20px;">$b = -6$</p> <p>Equation: $y = 1x - 6$ or $y = x - 6$</p>
<p>11.</p>  <p style="margin-left: 20px;">$m = -\frac{1}{4} = -\frac{1}{4}$</p> <p style="margin-left: 20px;">$b = 5$</p> <p>Equation: $y = -\frac{1}{4}x + 5$</p>	<p>12.</p>  <p>Equation: _____</p>

<h2 style="margin: 0;">GRAPHING LINEAR EQUATIONS</h2> <p style="margin: 0;">(By Slope-Intercept)</p>	Use the steps below to graph an equation using slope-intercept form:	
	1	Write the equation in slope-intercept form . $y = mx + b$
	2	Graph the y-intercept . This is always point $(0, b)$.
	3	Use the slope of the line to create more points. Remember slope is rise/run!
	4	Use a ruler to draw a line that extends through the points, placing an arrow on both ends.

<p>1. $y = -x + 5$ $m = -1$ down 1 right 1</p>  <p style="margin-left: 20px;">$b = 5$</p>	<p>2. $y = -3x - 1$ $m = -3$ down 3 right 1</p>  <p style="margin-left: 20px;">$b = -1$</p>	<p>3. $y = \frac{2}{5}x + 2$ $m = \frac{2}{5}$ up 2 right 5</p>  <p style="margin-left: 20px;">$b = 2$</p>
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$b = 5$



$m = -\frac{1}{4} \rightarrow \begin{matrix} -\frac{1}{4} \text{ down} \\ \frac{1}{4} \text{ right} \end{matrix}$
 $\searrow \begin{matrix} \frac{1}{4} \text{ up} \\ -\frac{1}{4} \text{ left} \end{matrix}$

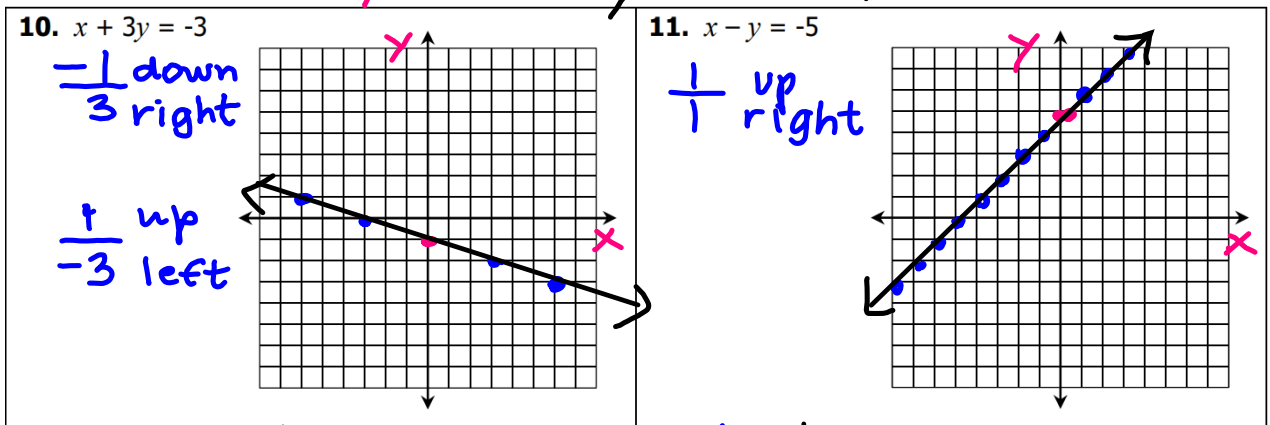
$b = 3$

$m = \frac{2}{1} \begin{matrix} \text{up} \\ \text{right} \end{matrix}$

$b = 6$
 $\begin{matrix} \text{down } 2 \\ \text{left } 1 \end{matrix}$

Solve for y.

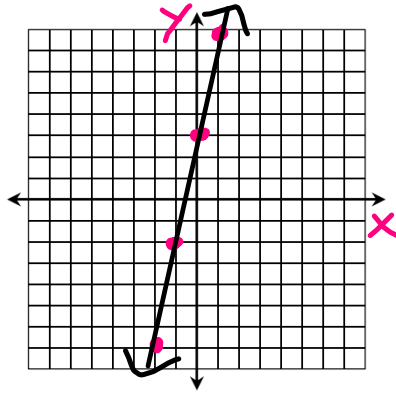
$y = mx + b$



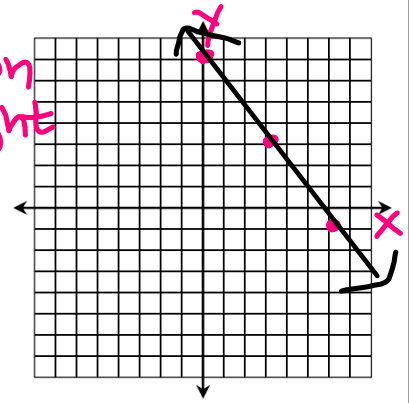
$$\begin{array}{r} x + 3y = -3 \\ -x \quad \quad -x \\ \hline 3y = -x - 3 \\ \frac{3y}{3} = \frac{-x}{3} - \frac{3}{3} \\ y = -\frac{1}{3}x - 1 \\ m = -\frac{1}{3} \quad b = -1 \end{array}$$

$$\begin{array}{r} x - y = -5 \\ -x \quad \quad -x \\ \hline -y = -x - 5 \\ \frac{-y}{-1} = \frac{-x}{-1} - \frac{5}{-1} \\ y = x + 5 \\ m = \frac{1}{1} \quad b = 5 \end{array}$$

12. $5x - y = -3$

 $\frac{5}{1}$ up
1 right

13. $4x + 3y = 21$

 $-\frac{4}{3}$ down
3 right

$$\begin{array}{r} 5x - y = -3 \\ \underline{-5x} \quad \underline{-5x} \\ -y = -5x - 3 \\ \underline{-1} \quad \underline{-1} \quad \underline{-1} \\ y = 5x + 3 \\ m = \frac{5}{1} \quad b = 3 \end{array}$$

$$\begin{array}{r} 4x + 3y = 21 \\ \underline{-4x} \quad \underline{-4x} \\ 3y = -4x + 21 \\ \underline{3} \quad \underline{3} \quad \underline{3} \\ y = -\frac{4}{3}x + 7 \\ m = -\frac{4}{3} \quad b = 7 \end{array}$$