SLOPE-INTERCEPT FORM & GRAPHING

Slope-Intercept Form

Linear equations are frequently written in **slope-intercept form**:

$y = mx + b$ where graph crosses the y-axis

m is the slope and *b* is the y-intercept

Examples

Directions: Given the slope and *y*-intercept of the line, write the equation in slope-intercept form.

1. slope = 2; *y*-intercept = -1 $y = 2x - 1$

2. slope = $-\frac{3}{5}$; *y*-intercept = 4 $y = -\frac{3}{5}x + 4$

3. slope = -3; *y*-intercept = 2

4. slope = -1; *y*-intercept = 7

5. slope = $\frac{1}{4}$; *y*-intercept = 0 $y = \frac{1}{4}x$ or $y = \frac{1}{4}x + 0$

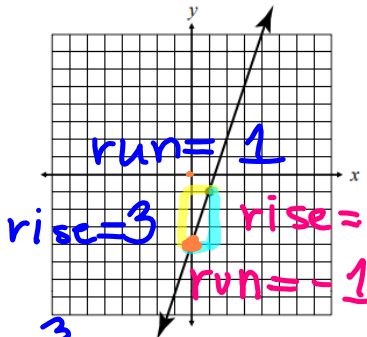
6. slope = $-\frac{5}{2}$; *y*-intercept = -3

Given a Graph

$\frac{-3}{-1} = 3$

Directions: Identify the slope and *y*-intercept of the line on the graph. Then, write the equation of the line in slope-intercept form.

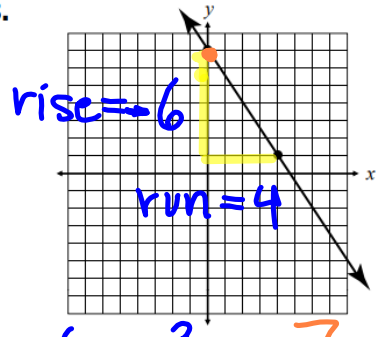
7.



$m = \frac{3}{1} = 3$ $b = -4$

Equation: $y = 3x - 4$

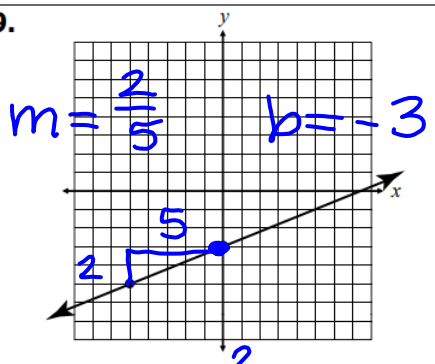
8.



$m = \frac{-6}{4} = -\frac{3}{2}$ $b = 7$

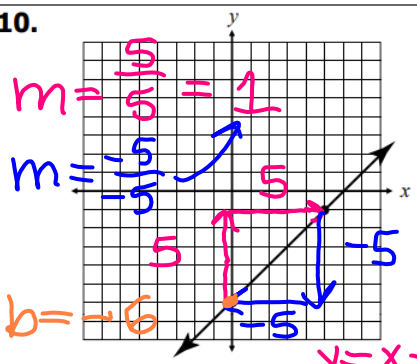
Equation: $y = -\frac{3}{2}x + 7$

9.



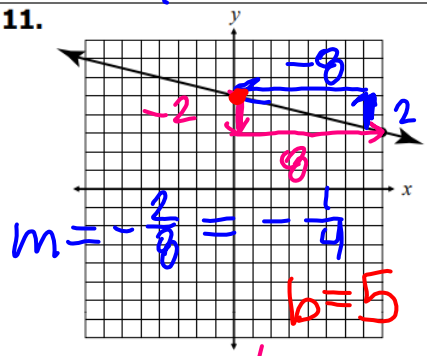
Equation: $y = \frac{2}{5}x - 3$

10.



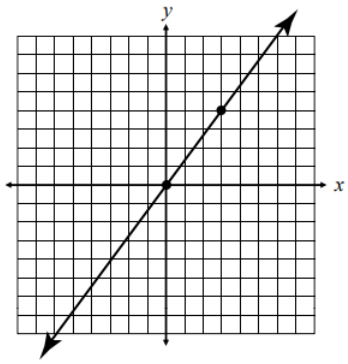
Equation: $y = 1x - 6$ or $y = x - 6$

11.



Equation: $y = -\frac{1}{4}x + 5$

12.



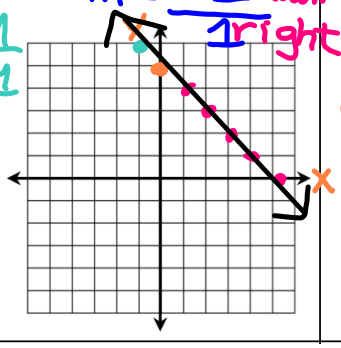
Equation: _____

GRAPHING LINEAR EQUATIONS (By Slope-Intercept)	Use the steps below to graph an equation using slope-intercept form:
❶	Write the equation in **slope-intercept form**. $y = mx + b$
❷	Graph the ***y*-intercept**. This is always point (0, *b*). starting point
❸	Use the **slope** of the line to create more points. Remember slope is rise/run!
❹	Use a ruler to draw a line that extends through the points, placing an arrow on both ends.

1. $y = -x + 5$

$m = -\frac{1}{1}$ down 1 / right 1

up 1 left 1

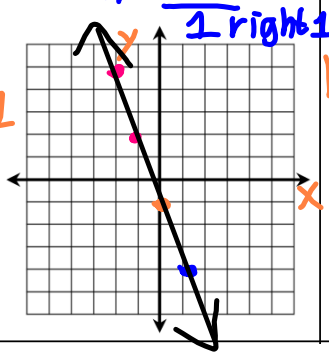


$b = 5$

2. $y = -3x - 1$

$m = -\frac{3}{1}$ down 3 / right 1 (up 3 / left 1)

$b = -1$

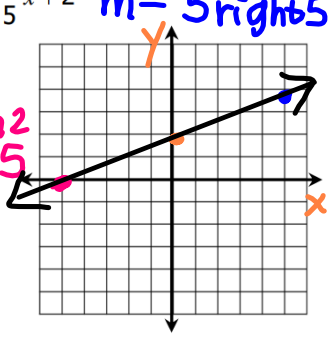


3. $y = \frac{2}{5}x + 2$

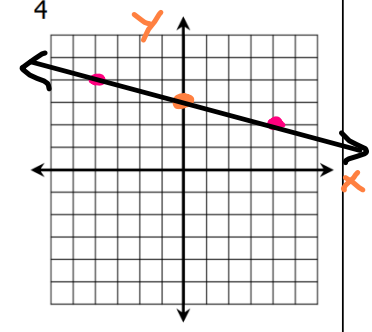
$m = \frac{2}{5}$ up 2 / right 5

$b = 2$

down 2 left 5



4. $y = -\frac{1}{4}x + 3$

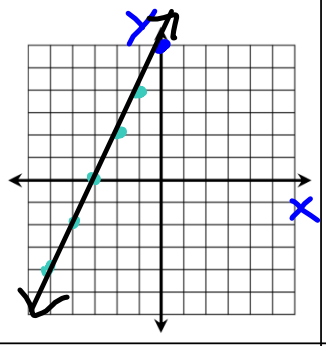


$m = -\frac{1}{4} \rightarrow \frac{-1}{4}$ down 1 right

$\searrow \frac{1}{-4}$ up 1 left

$b = 3$

5. $y = 2x + 6$



$m = \frac{2}{1}$ up 2 right

$b = 6$

down 2
left 1

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