INTERMEDIATE ALGEBRA

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GPS # 8 **2.3 THE SLOPE OF A LINE** **NAME:** Kelly Fenton

Useful Guidelines:

* The slope of a line through the points (x_1, y_1) and (x_2, y_2) is (1,9)(8,18)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{rise}{run}$ $(x_1 \neq x_2)$. **"Slope Formula"**

rise / run

* The slope-intercept form of the equation of a line with slope m and y-intercept b is $y = mx + b$

positive

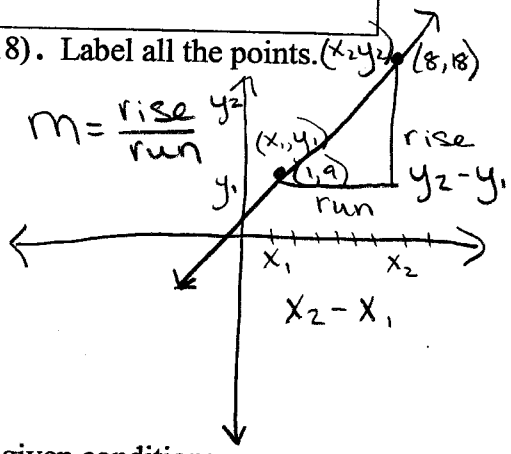
negative

1. Graph and find the slope of a line through the points (1,9) and (8,18). Label all the points. Find an equation of the line containing the given pair of points.

m (slope) $= \frac{y_2 - y_1}{x_2 - x_1}$

$= \frac{18-9}{8-1}$

$m = \frac{9}{7}$



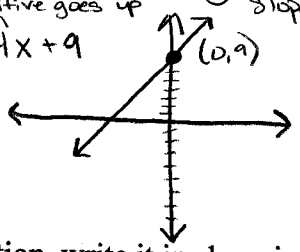
2. Find the equation in slope-intercept form of the line satisfying the given conditions.

a) slope 4; y-intercept (0,9)

$m = 4$ positive goes up

$b = 9$ $y = 4x + 9$

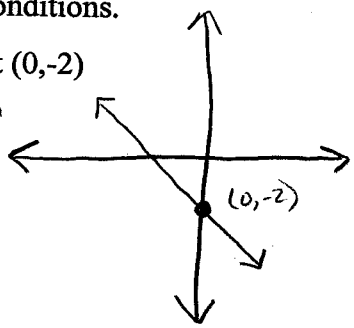
$y = mx + b$ (m: slope, b: intercept)



b) slope $-\frac{7}{4}$; y-intercept (0,-2)

negative goes down

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



3. For each equation, write it in slope-intercept form, give the slope of the line, give the y-intercept, and graph the line. Label the line and all the points. $y = mx + b$

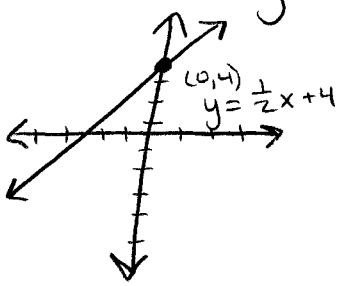
a) $-x + 2y = 8$ (solve for y)

$\frac{2y}{2} = \frac{x}{2} + \frac{8}{2}$

$y = \frac{1}{2}x + 4$

(slope) $m = \frac{1}{2}$

y-int = (0,4)



x	y
0	4
2	5
4	6

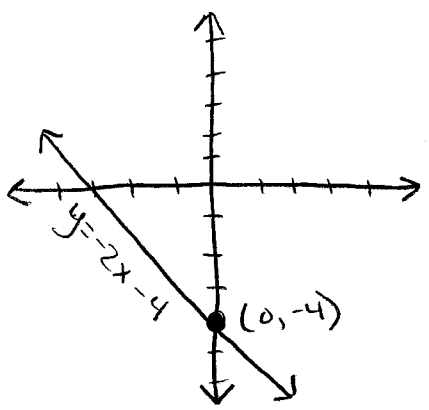
b) $3y + 6x = -12$

$\frac{3y}{3} = \frac{-6x}{3} - \frac{12}{3}$

$y = -2x - 4$

(slope) $m = -2$

y-int. = (0,-4)



x	y
0	-4
2	-8
4	-12