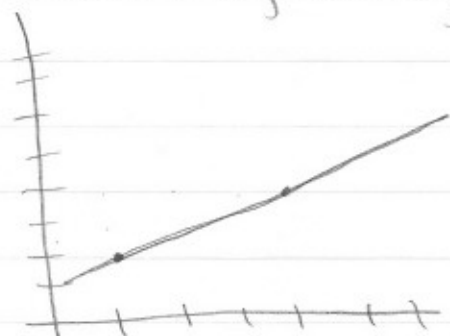


4.4

Using Slope to Graph a Line

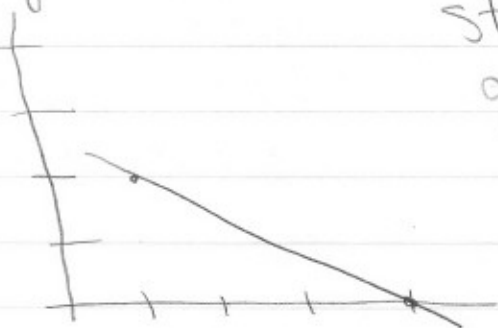
Remember, $m = \frac{\text{rise}}{\text{run}}$ so if I have one point on a line and the slope, I can draw the line.
(a neg. slope means go down instead of up.)

ex) I know my line goes thru $(1, 2)$ and $m = \frac{2}{3}$



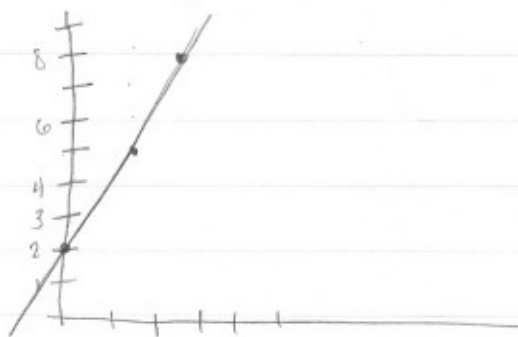
Start at $(1, 2)$
go up 2, over 3.

if $m = -\frac{2}{3}$



Start at $(1, 2)$
go down 2, over 3

ex) line goes thru $(0, 2)$ and slope is 3
(note: $3 = \frac{3}{1}$)

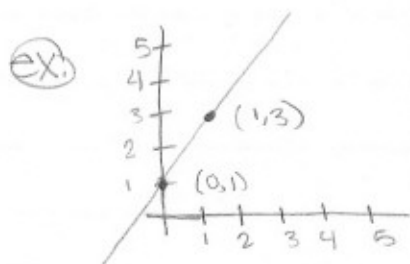


Slope-Intercept Form of the Equation of a Line

Slope-Intercept form is

$$y = mx + b$$

$m = \text{slope}$ $b = \text{y-intercept}$



$$b = 1$$

$m = \frac{3-1}{1-0} = \frac{2}{1} = 2$ or "from (0,1) to (1,3) I went up 2 (rise) and over 1 (run) so $\frac{2}{1} = 2$."

$$\text{so } y = 2x + 1$$

ex. find the slope & y-intercept of $y = \frac{1}{5}x - 2$

$$m = \frac{1}{5} \quad b = -2$$

graph it



What about $3x + y = 7$

Some algebra first

$$y = 7 - 3x$$

$$y = -3x + 7$$

$$m = -3 \quad b = 7$$



try one:

find y-int and slope, then graph $y = -\frac{1}{2}x + 2$

ex) graph $3x + 2y = 4$

$$3x + 2y = 4$$

$$-3x \quad -3x$$

$$\frac{2y}{2} = \frac{-3x + 4}{2}$$

$$y = -\frac{3}{2}x + \frac{4}{2}$$

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

