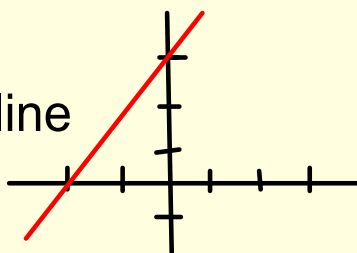


## 2-4 5 Minute Check

1. find the intercepts and the slope of the line



2. Find the slope of the line passing through (2.3, 9.5) and (3.8, 20)

3. Describe the slope of the graph of the equation  $y - 3x = 2$ .

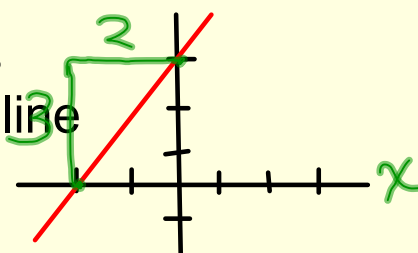
5-min check

## 2-4 5 Minute Check

1. find the intercepts and the slope of the line

$$x\text{-int} = -2$$

$$y\text{-int} = b = 3$$



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

2. Find the slope of the line passing through (2.3, 9.5) and (3.8, 20)

$$m = \frac{20 - 9.5}{3.8 - 2.3} = \frac{10.5}{1.5} = 7$$

3. Describe the slope of the graph of the equation  $y - 3x = 2$ .

$$-3x + y = 2$$

$$y = 3x + 2$$

$$m = 3$$

$$y = mx + b$$

↑  
# slope

5-min check

## 2-4 Writing Linear Equations

Objective: Find the linear equations for certain conditions and graph them.  
Graph absolute value equation.



### Slope-intercept Form of a Linear Equation:

$$y = mx + b$$

$m$  = slope

$b$  = y-intercept

### Point-slope Form of a Linear Equation:

$$y - b = m(x - a)$$

$(a, b)$  point

$m$  = slope

2-4

### Example 1:

Find the slope-intercept form of the line that has a slope of  $2 = m$  and passes through  $(-1, 3)$

$$y - b = m(x - a) \quad (a, b)$$

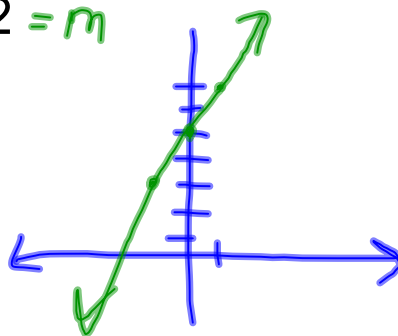
$$y - 3 = 2(x - (-1))$$

$$y - 3 = 2(x + 1) \quad \leftarrow y = mx + b$$

$$y - 3 = 2x + 2$$

$$y = 2x + 5$$

$$m = \frac{2}{1} \quad (0, 5)$$



ex 1

## Example 2:

Find an equation of the line that passes through (2, 3) and (1, 5).

$$m = \frac{5-3}{1-2} = \frac{2}{-1} = -2 = m$$

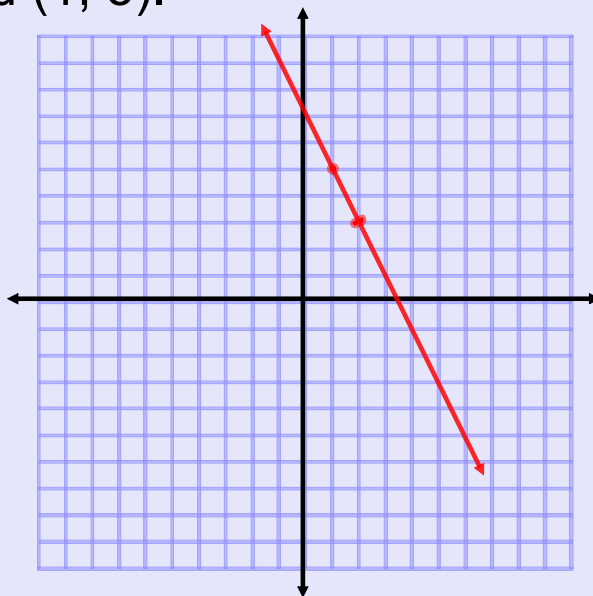
$$y - b = m(x - a)$$

$$y - 3 = -2(x - 2)$$

$$y - 3 = -2x + 4$$

$$y = -2x + 7$$

$$2x + y = 7$$



ex 2

## Example 3:

Write an equation of the line through (3, 2) and is perpendicular to the line whose equation is  $y = 2x + 5$ .

$$m = -\frac{1}{2}$$

$$\uparrow$$

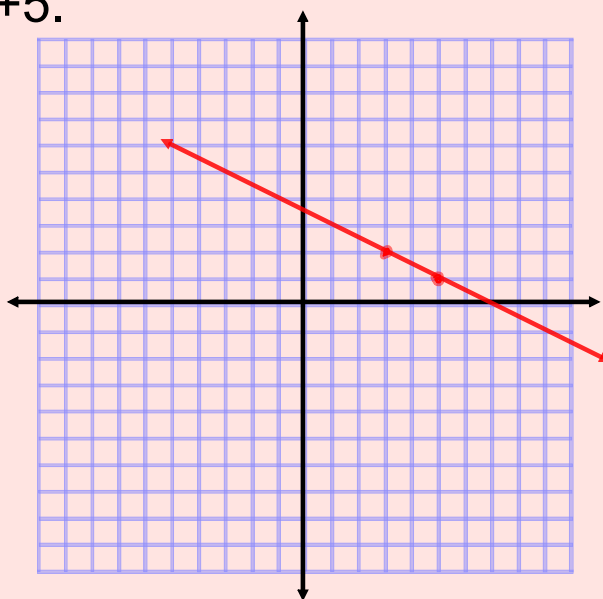
$$m = 2$$

$$y - b = m(x - a)$$

$$y - 2 = -\frac{1}{2}(x - 3)$$

$$y - 2 = -\frac{1}{2}x + 1.5$$

$$y = -\frac{1}{2}x + 3.5$$



ex 3

Example 4:  
graph the following using the  
slope and y-intercept.

a.  $y = 2x + 3$

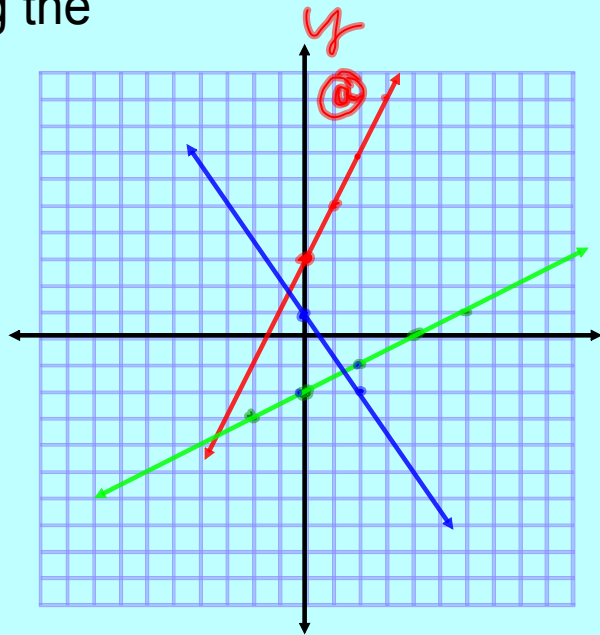
$m = \frac{2}{1}$   $(0, 3)$

b.  $y = \frac{1}{2}x - 2$

$m = \frac{1}{2}$   $(0, -2)$

c.  $y = -\frac{3}{2}x + 1$

$m = -\frac{3}{2}$   $(0, 1)$



ex 4

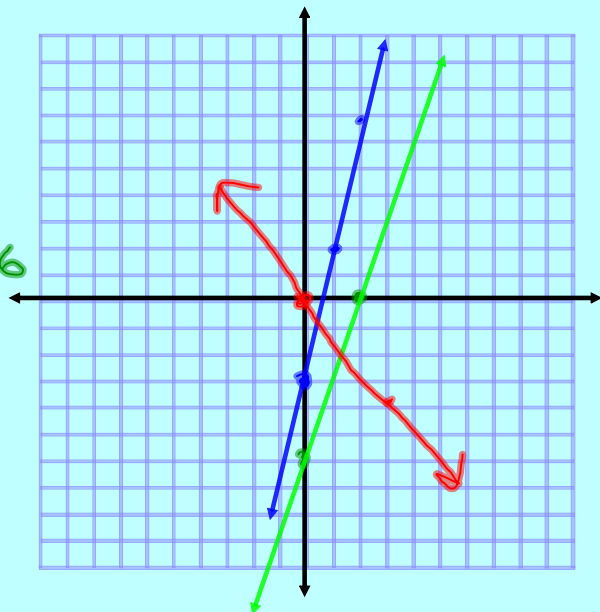
Example 4:  
graph the following:

a.  $y = 5x - 3$

$m = \frac{5}{1}$   $b = -3$   $(0, -3)$

b.  $3x - y = 6$   $x\text{-int} = 2$   
 $-y = -3x + 6$   $y\text{-int} = -6$   
 $y = 3x - 6$

c.  $y = -\frac{4}{3}x + 0$   
 $m = -\frac{4}{3}$   $(0, 0)$



ex 5

Example 6:

Graph the following:

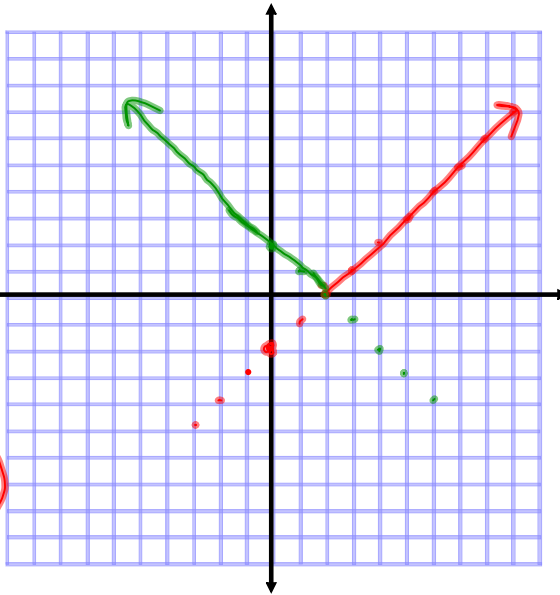
$$y = |x - 2|$$

Case I

$$y = x - 2 \quad \begin{matrix} (x - 2 \geq 0) \\ (x \geq 2) \end{matrix}$$

Case II

$$y = -x + 2 \quad \begin{matrix} (x - 2 < 0) \\ (x < 2) \end{matrix}$$



Ex 6

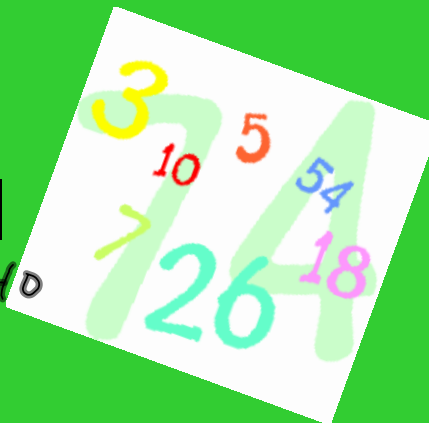
Assignment:

p. 92-93 #21-40,

also graph  $y = |2x + 1|$

Graph 21, 22, 30, 32, 34, 40

★ Bonus: p. 94 #59-61



Assignment