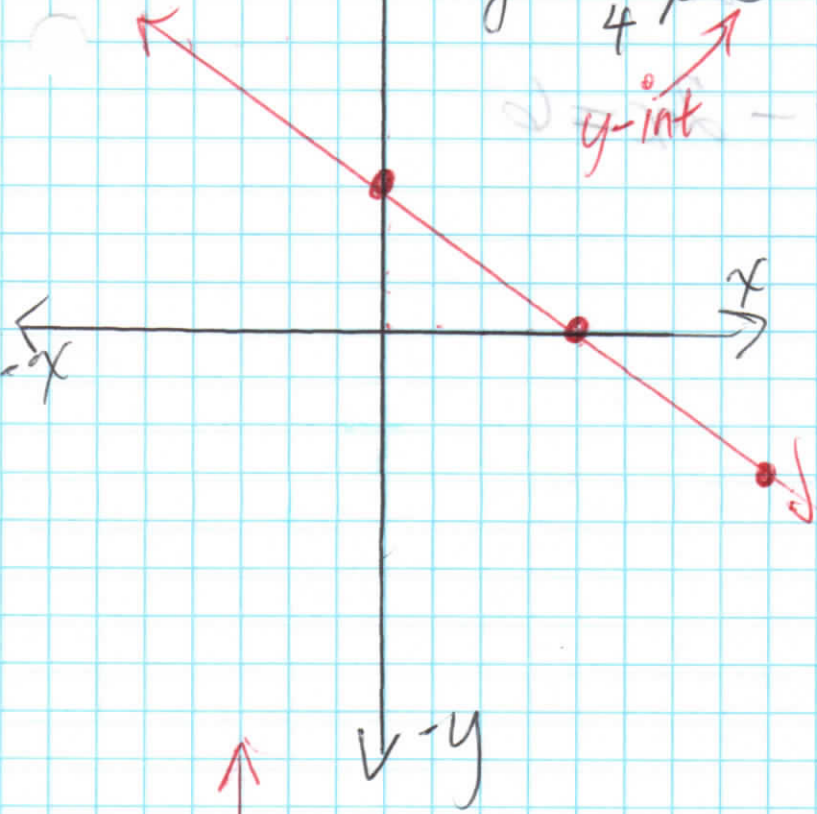
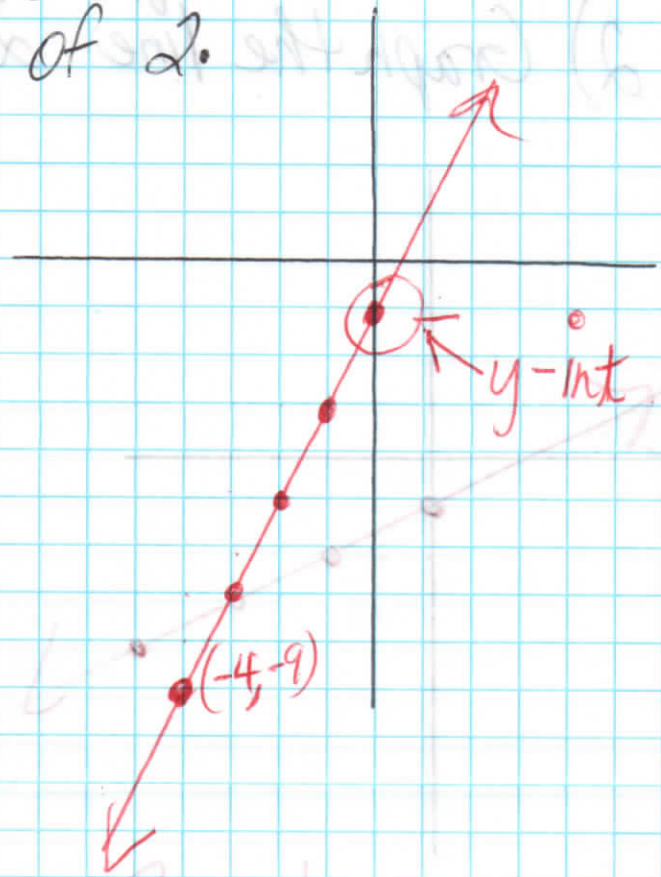


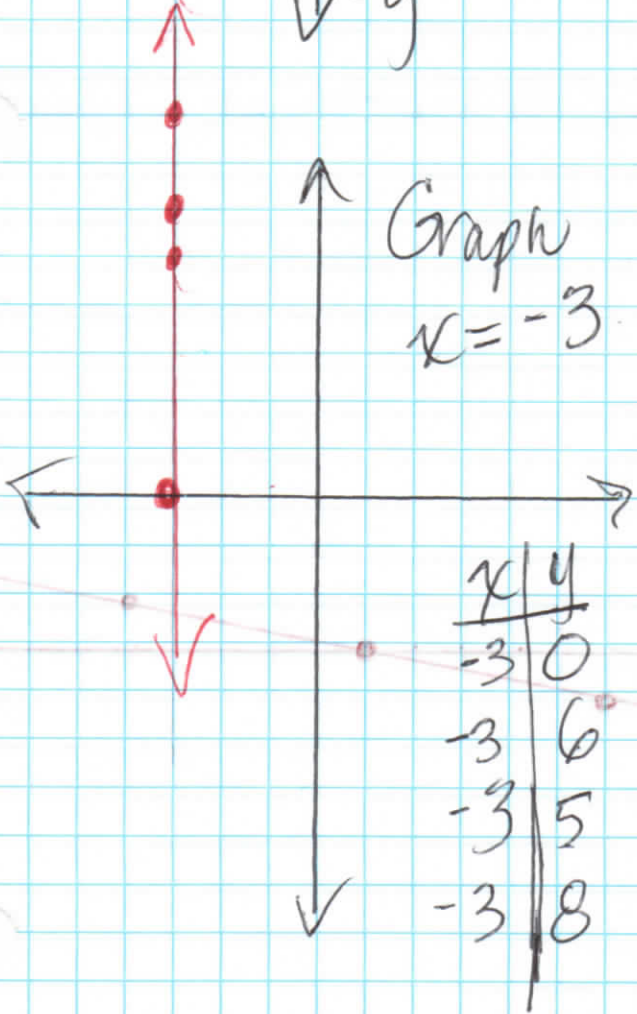
Graph
 $y = -\frac{3}{4}x + 3$
 y-int



Graph the line through
 $(-4, -9)$ with a slope
 of 2.



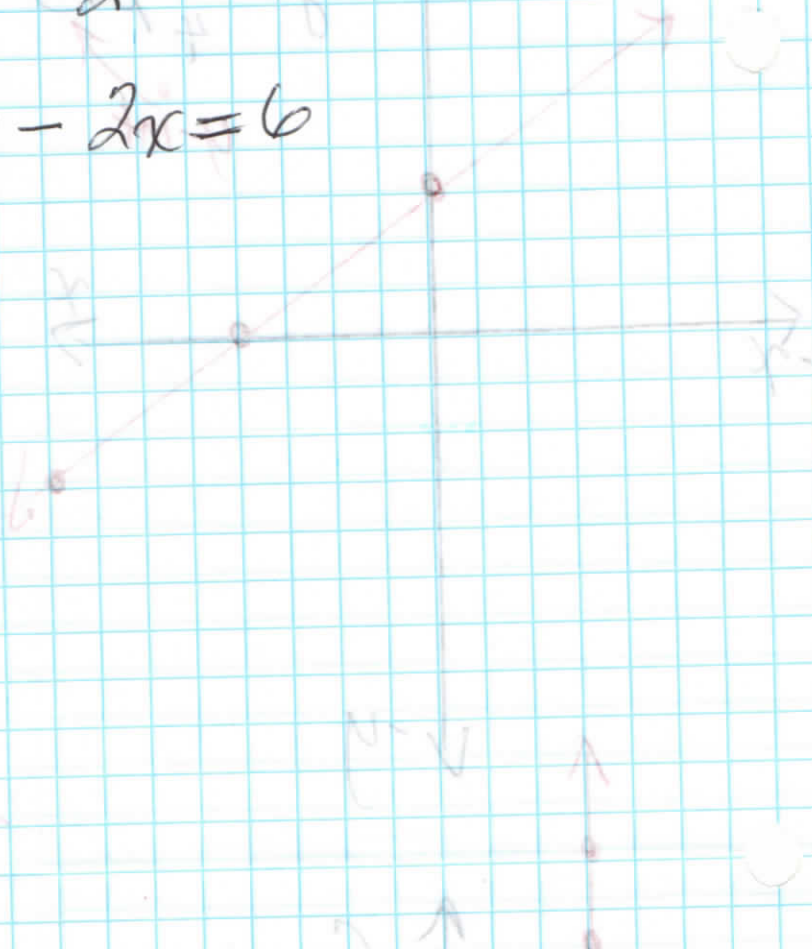
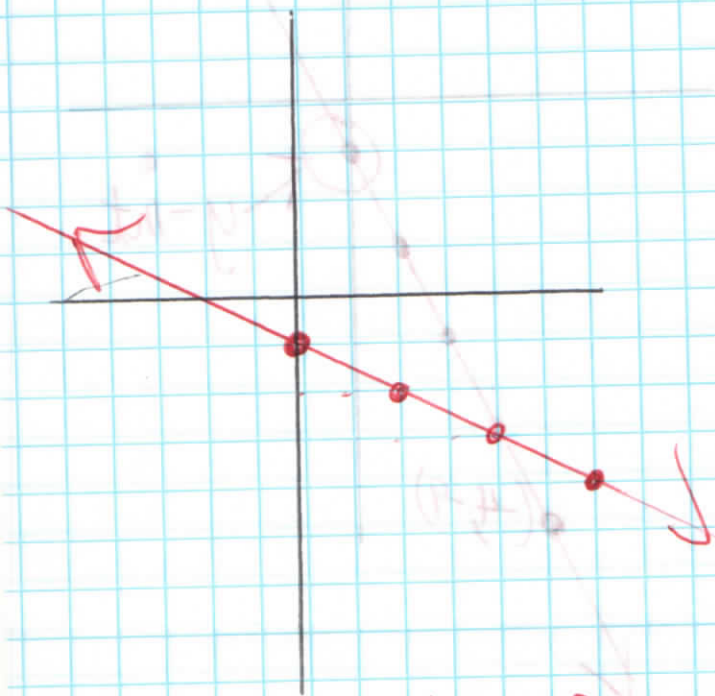
Graph
 $x = -3$



Conclusion: When the
 x-value is constant,
 our line is vertical
 and our slope is
undefined.

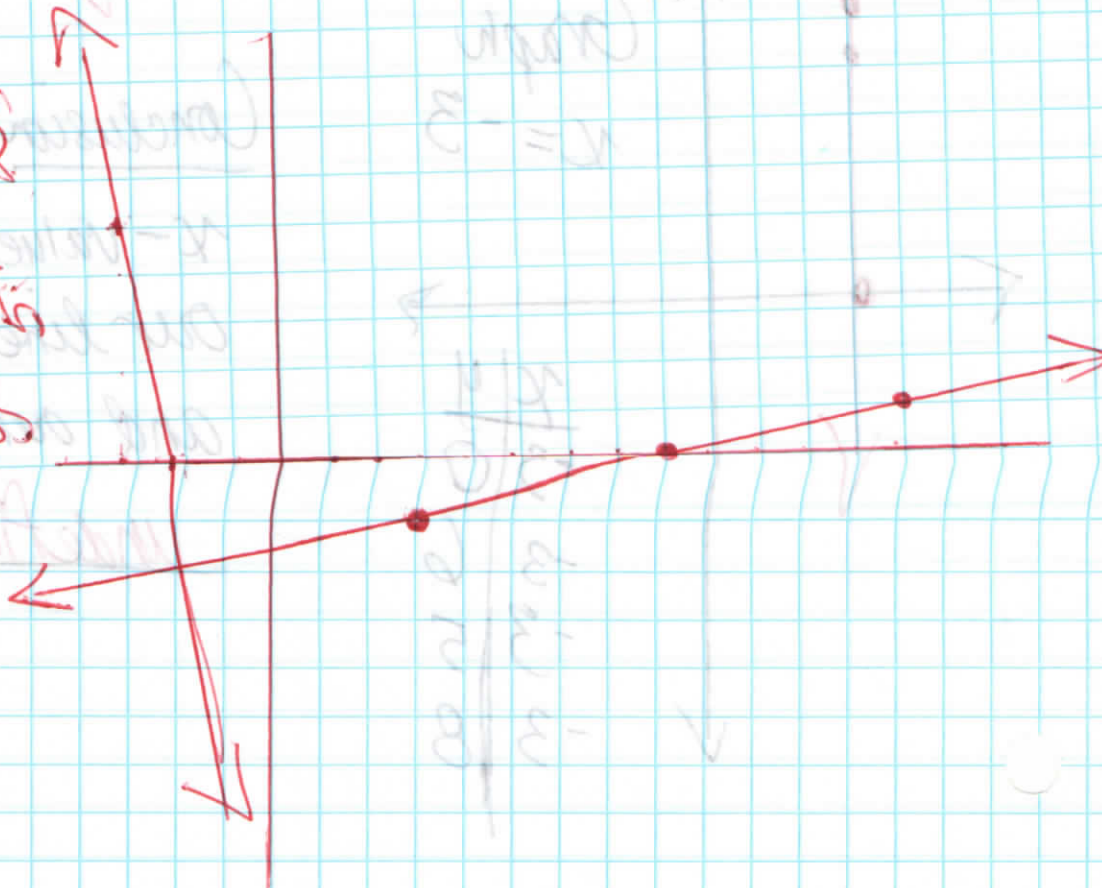
1) Graph the line $y = -\frac{1}{2}x - 1$

2) Graph the line $2y - 2x = 6$



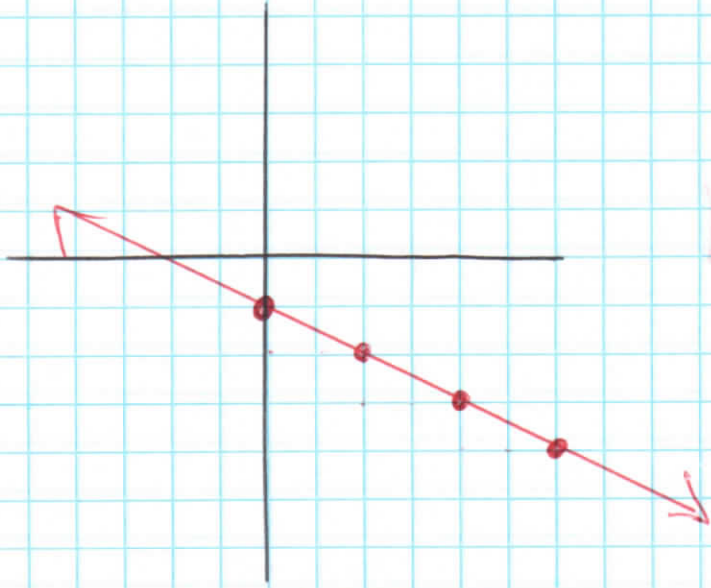
point = (-2, 2)
slope = $\frac{1}{5}$

$$y - 2 = \frac{1}{5}(x + 2)$$
$$y - 2 = \frac{1}{5}x + \frac{2}{5}$$
$$+ 2$$
$$y = \frac{1}{5}x + 2\frac{2}{5}$$

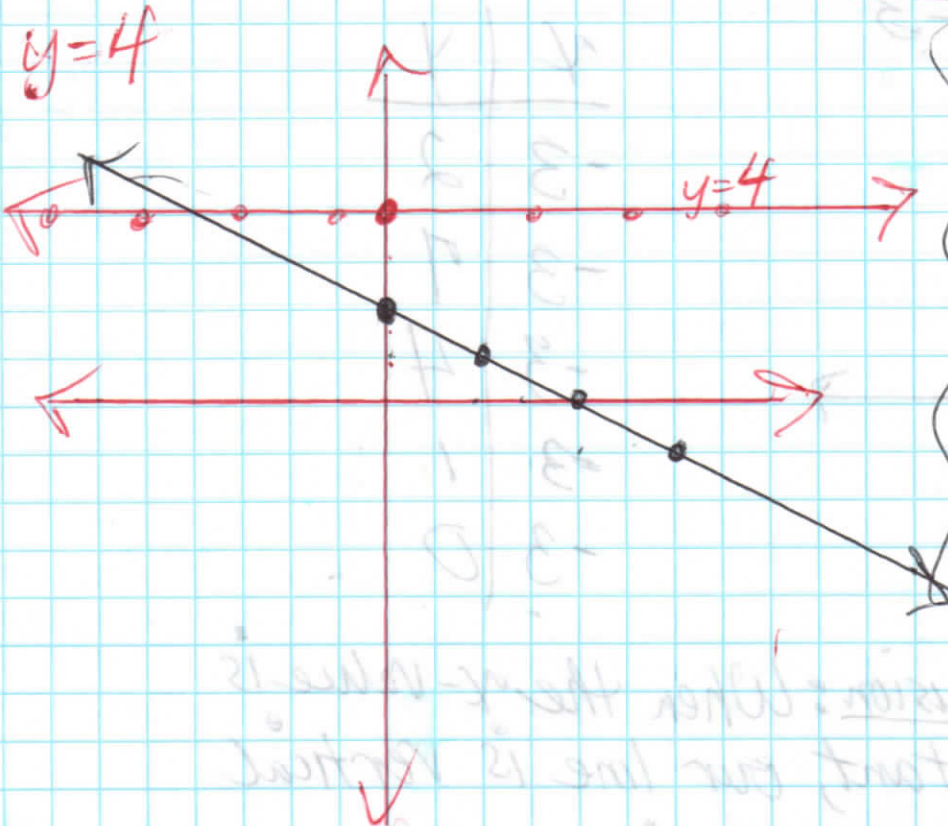


1) Graph the line $y = -\frac{1}{2}x - 1$.

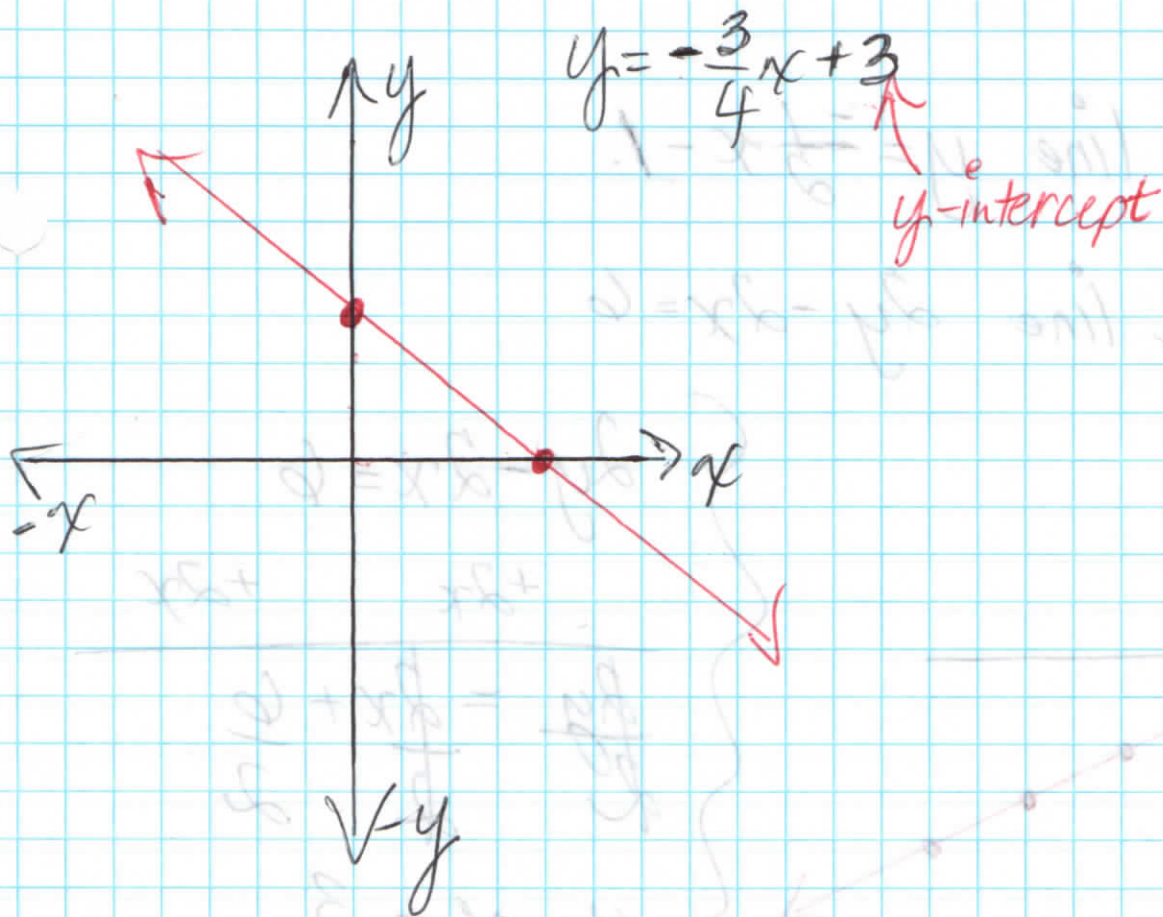
2) Graph the line $2y - 2x = 6$



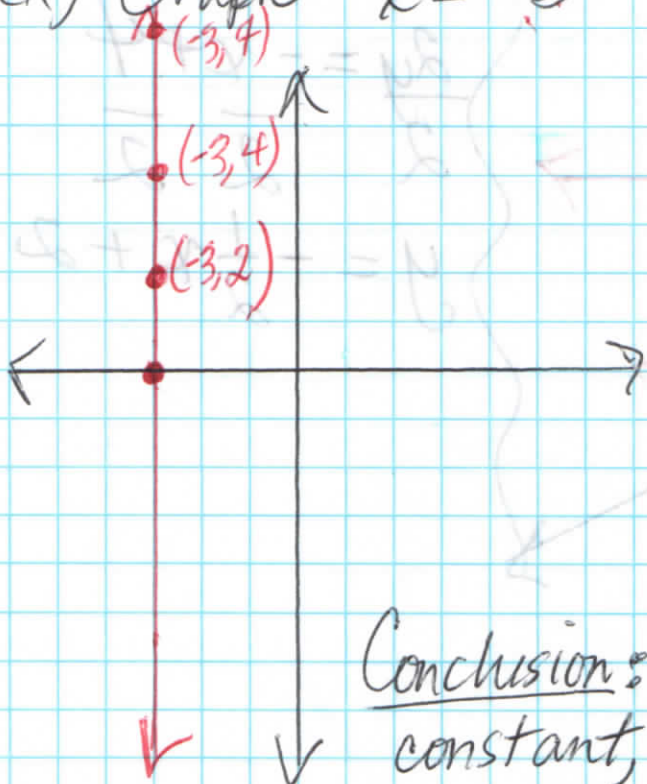
$$\begin{array}{r} 2y - 2x = 6 \\ +2x \quad +2x \\ \hline 2y = 2x + 6 \\ \frac{2y}{2} = \frac{2x}{2} + \frac{6}{2} \\ y = x + 3 \end{array}$$



$$\begin{array}{r} 2y = -x + 4 \\ \frac{2y}{2} = \frac{-x}{2} + \frac{4}{2} \\ y = -\frac{1}{2}x + 2 \end{array}$$



Ex) Graph $x = -3$



x	y
-3	2
-3	7
-3	4
-3	1
-3	0

Conclusion: When the x -value is constant, our line is vertical and our slope is undefined.

4/5/16

Examples

Pg 200
#10

$$m_{\perp} = \frac{1}{2}$$

perpendicular

$$\begin{cases} y - y_1 = m(x - x_1) \\ y - 2 = \frac{1}{2}(x - 3) \\ y - 2 = \frac{1}{2}x - \frac{3}{2} \\ \quad +2 \qquad \quad +2 \\ \hline y = \frac{1}{2}x + \frac{1}{2} \end{cases}$$

#11

$$y - 5 = 4(x - (-1))$$

$$y - 5 = 4(x + 1)$$

$$y - 5 = 4x + 4 \\ +5 \qquad +5$$

$$\boxed{y = 4x + 9}$$

Note: Parallel lines have equal slopes.

Pg 200 #10

① slope = $\frac{1}{2}$

② point (3, 2)
 $x_1 \ y_1$

$$y - y_1 = m(x - x_1)$$

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

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

$$\begin{array}{r} +2 \qquad \qquad +2 \\ \hline \end{array}$$

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

Common
Core
Book
Pg 57

$$y = 1x + 1$$

$$2y - 2x = 6$$

$$2y - 2x = 6$$

$$\begin{array}{r} 2x \qquad \qquad 2x \\ \hline \end{array}$$

$$\frac{2y}{2} = \frac{2x + 6}{2}$$

$$y = 1x + 3$$

Slopes of ~~of~~ parallel
lines ~~have the~~
are equal.

~~PARALLEL~~
PARALLEL

#1
Pg 57
CC Book

$$y = x + 1$$
$$2y - 2x = 6$$

* No using
point-slope
here

$$2y - 2x = 6, \text{ let's solve for "y"}$$
$$+2x \quad 2x$$

$$\frac{2y}{2} = \frac{2x}{2} + \frac{6}{2}$$

$$y = x + 3$$

PARALLEL LINES

1/28/16

Key Words/Phrases: equation $\Rightarrow -2x + y = 1$; graph;
passes thru $(1, -1)$; parallel

$$-2x + y = 1 \text{ (standard form)}$$

We need to be in slope-intercept form:

$$y = mx + b$$

$$-2x + y = 1$$

$2x$

$2x$

$$y = 2x + 1$$

So, slope = 2

Therefore, the equation of
the line passing thru $(1, -1)$

is:

$$y - y_1 = m(x - x_1)$$

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

$$y + 1 = 2x - 2$$

$$-1 \quad -1$$

$$y = 2x - 3$$

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