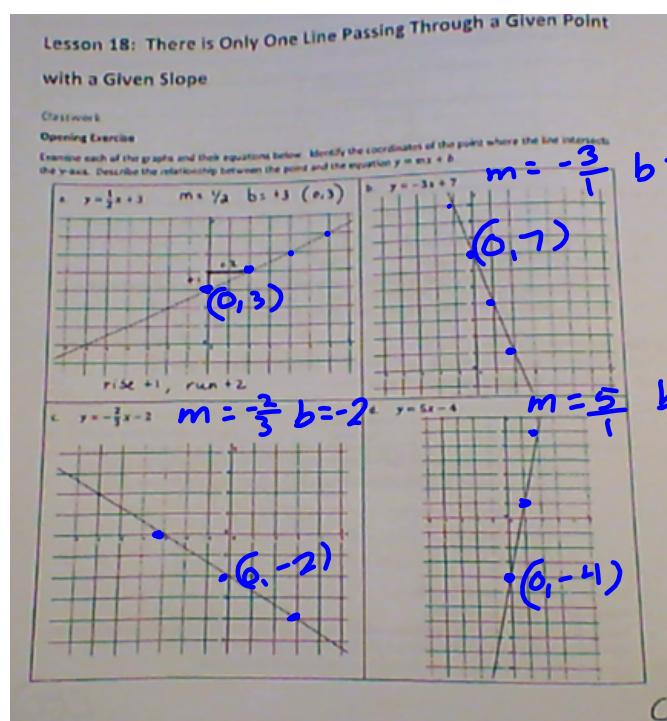


- 1) Bell Ringer: inequalities packet due tomorrow
- 2) Turn in slope packet
- 3) lesson: Graphing equations by intercepts
- 4) Homework: pages 70-70b

Mar 22-10:59 AM



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4. Solve the following equation for y : $5x - y = 4$.
- Based on your transformed equation, what is the slope of the linear equation $5x - y = 4$?
 - Complete the table to find solutions to the linear equation.

x	Transformed linear equation:	y
-1	$y = 5x - 4$	-9
0	$y = 5(0) - 4$	-4
1	$y = 5(1) - 4$	1
2	$y = 5(2) - 4$	6

$$5x - y = 4$$

$$-5x \quad -5x$$

$$y = -5x + 4$$

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

- Graph the points on the coordinate plane.
- Find the slope between any two points.
- The slope you found in part (d) should be equal to the slope you noted in part (a). If so, connect the points to make the line that is the graph of an equation of the form $y = mx + b$ that has slope m .
- Note the location (ordered pair) that describes where the line intersects the y-axis.

$$\frac{5}{1}$$

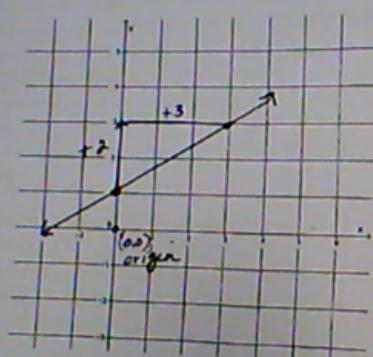
(0, -4)

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Example 1

Graph the equation $y = \frac{2}{3}x + 1$. Name the slope and y-intercept.

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



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Example 2

$m = -\frac{3}{4}$ b $(6, -2)$

Graph the equation $y = -\frac{3}{4}x - 2$. Name the slope and y-intercept.

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Exercises

1. Graph the equation $y = \frac{5}{2}x - 4$.

a. Name the slope and the y-intercept.

$m = \frac{5}{2}$ $b = -4$

b. Graph the known point, then use the slope to find a second point before drawing the line.

C (5)

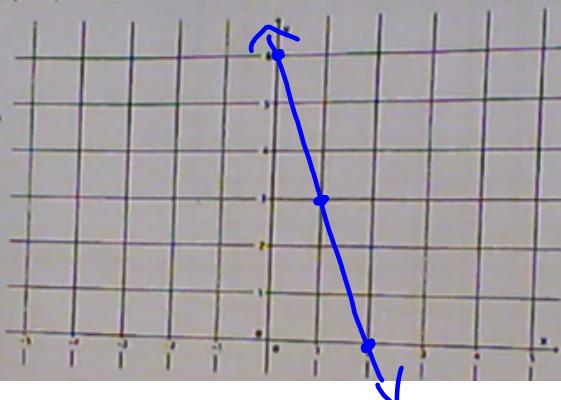
Mar 24-12:47 PM

2. Graph the equation $y = -3x + 6$.

a. Name the slope and the y-intercept.

$$m = -\frac{3}{1} \quad b = 6$$

b. Graph the known point, then use the slope to find a second point before drawing the line.



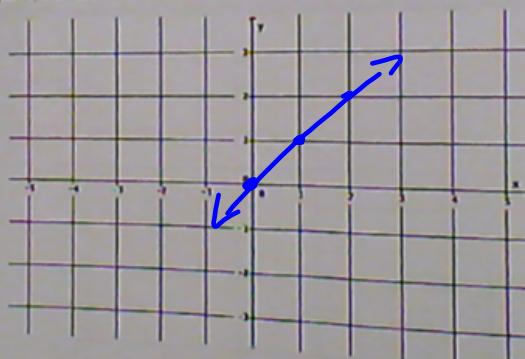
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3. The equation $y = 1x + 0$ can be simplified to $y = x$.

a. Name the slope and the y-intercept.

$$m = 1 \quad b = 0$$

b. Graph the known point, then use the slope to find a second point before drawing the line.



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Graph the point $(0, 2)$.

a. Find another point on the graph using the slope, $m = \frac{2}{7}$.

b. Connect the points to make the line.

c. Draw a different line that goes through the point $(0, 2)$ with slope $m = \frac{2}{7}$. What do you notice?

Cannot be done

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A bank ^b put \$10 into a savings account when you opened the account. Eight weeks later you have a total of \$24. Assume you saved the same amount every week.

- a. If y is the total amount of money in the savings account and x represents the number of weeks, write an equation in the form $y = mx + b$ that describes the situation.

$$y = 1.75x + 10$$

- b. Identify the slope and the y -intercept. What do these numbers represent?

$$m = \$1.75 \text{ each week}$$

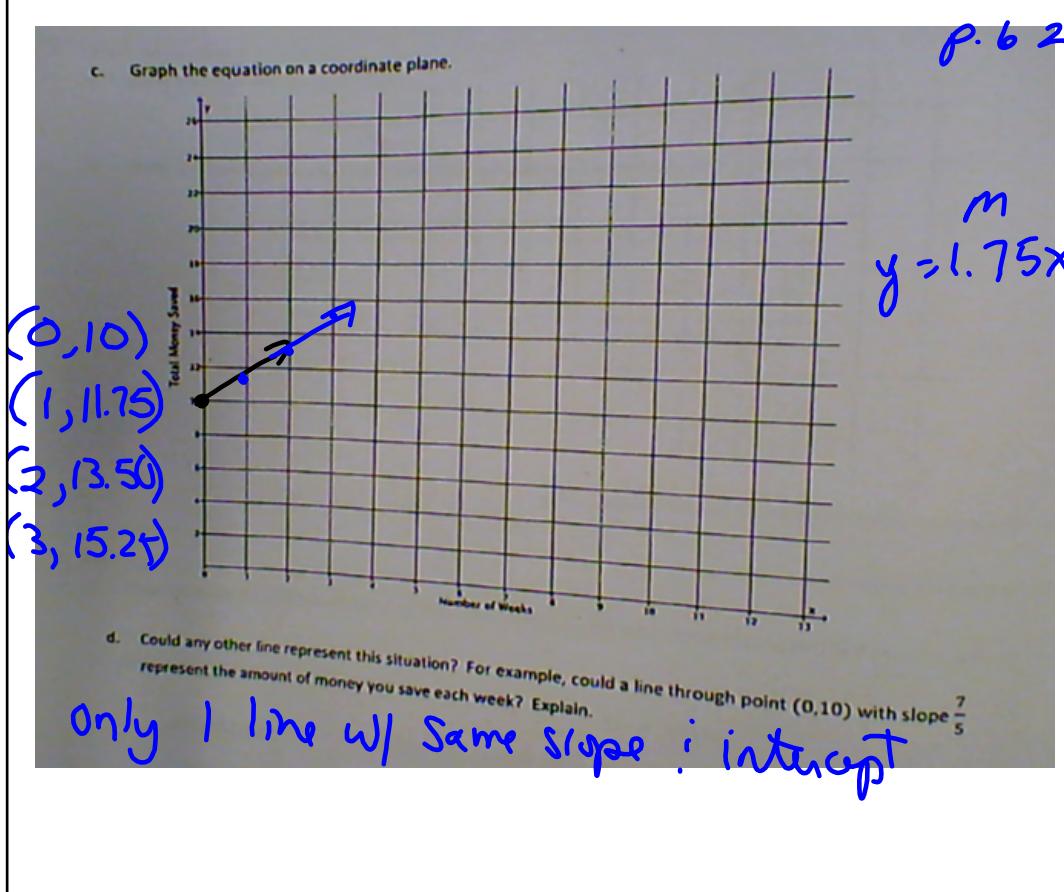
$$b = \$10 \text{ (\$ I started with)}$$

weeks	$\$$
x	y
0	10
8	24

$$m = \frac{14}{8} = 1\frac{6}{8}$$

$$1.75$$

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P. 6.3

6. A group of friends are on a road trip. So far they have driven 120 miles. They continue their trip and drive at a constant rate of 50 miles per hour.

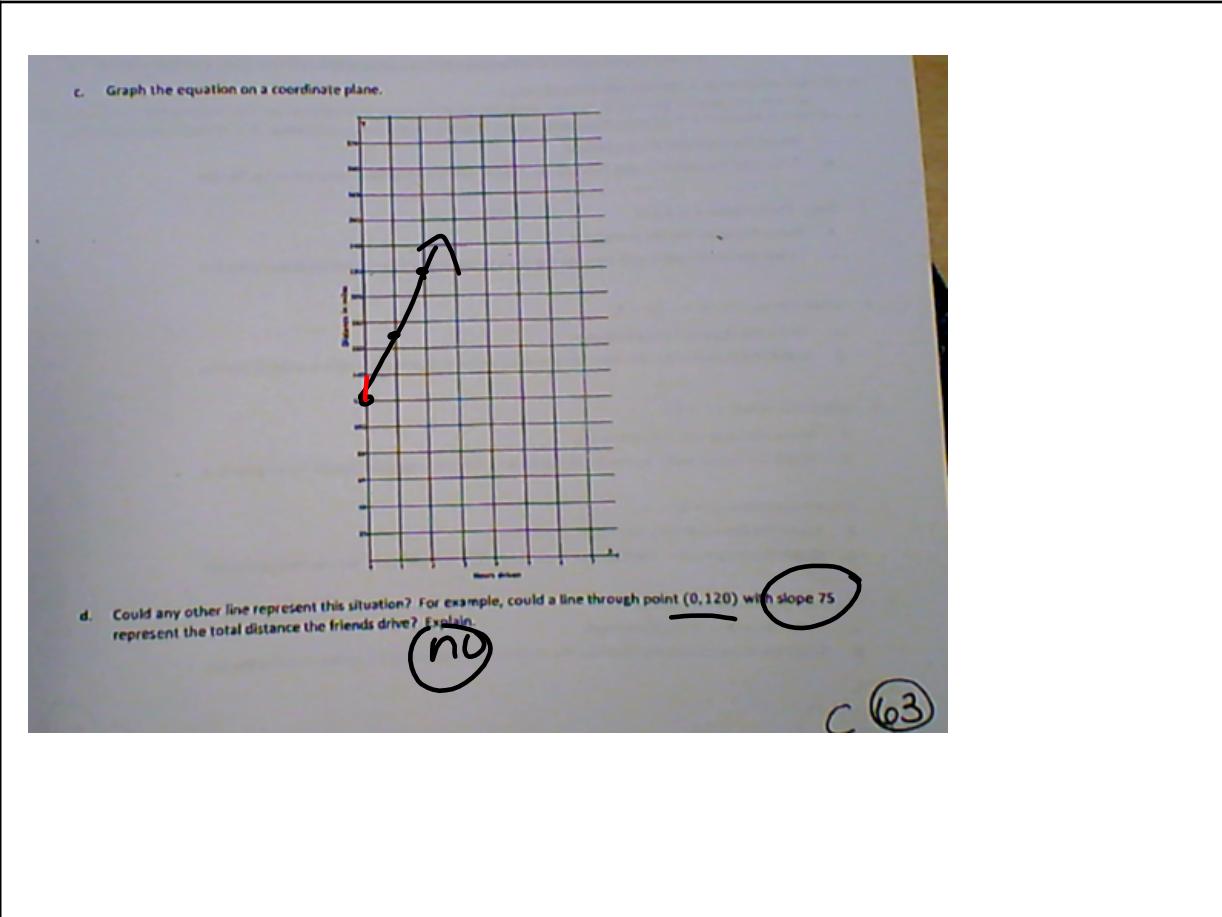
a. Let y represent the total distance traveled in x hours. Write an equation to represent the total number of miles driven in x hours.

$$y = 50x + 120$$

b. Identify the slope and the y -intercept. What do these numbers represent?

y .int. = 120 miles
 (starting pt)
 $m = 50 \text{ mph}$ (speed)

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Problem Set

Graph each equation on a pair of x and y axes.

- Graph the equation $y = \frac{4}{3}x + 5$.
 - Name the slope and the y -intercept.
 - Graph the known point, and then use the slope to find a second point before drawing the line.
- Graph the equation $y = x + 3$.
 - Name the slope and the y -intercept.
 - Graph the known point, and then use the slope to find a second point before drawing the line.
- Graph the equation $y = -\frac{4}{3}x + 4$.
 - Name the slope and the y -intercept.
 - Graph the known point, and then use the slope to find a second point before drawing the line.
- Graph the equation $y = \frac{5}{2}x$.
 - Name the slope and the y -intercept.
 - Graph the known point, and then use the slope to find a second point before drawing the line.
- Graph the equation $y = 2x - 6$.
 - Name the slope and the y -intercept.
 - Graph the known point, and then use the slope to find a second point before drawing the line.
- Graph the equation $y = -5x + 9$.
 - Name the slope and the y -intercept.
 - Graph the known point, and then use the slope to find a second point before drawing the line.

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7. Graph the equation $y = \frac{1}{3}x + 1$.

- Name the slope and the y-intercept.
- Graph the known point, and then use the slope to find a second point before drawing the line.

8. Graph the equation $5x + 4y = 8$. (Hint: transform the equation so that it is of the form $y = mx + b$.)

- Name the slope and the y-intercept.
- Graph the known point, and then use the slope to find a second point before drawing the line.

9. Graph the equation $-2x + 5y = 30$.

- Name the slope and the y-intercept.
- Graph the known point, and then use the slope to find a second point before drawing the line.

10. Let l and f be two lines with the same slope m passing through the same point P . Show that there is only one line with a slope m , where $m < 0$, passing through the given point P . Draw a diagram if needed.

$$\begin{aligned} -2x + 5y &= 30 \\ 5y &= 2x + \frac{30}{5} \\ y &= \frac{2}{5}x + 6 \end{aligned}$$

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p69a

Slope-Intercept Form

I. Solve for y :

$$\begin{aligned} 4x + y &= 3 \\ 4x - 4x + y &= 4x + 3 \\ y &= 4x + 3 \end{aligned}$$

1. $x + y = 3$ $y = -x + 3$

2. $2x - y = 7$

3. $6 + 2y = 10x$

4. $3y - 6x + 12 = 0$

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II. Solve for y ; state the m and y_0

$$\begin{aligned} 9x - 3y &= -6 \\ y &= 3x + 2 \\ m &= \frac{3}{1} \\ y_0 &= 2 \end{aligned}$$

5. $2y - 6x = 2$

6. $y - 4x = -3$

7. $4y = 5x + 12$

8. $2x - 3y = 5$

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III. Graph the line by 1.) solving for y 2.) using m and y_0 3.) check one point

9. $4x + y = -8$

$y = -4x - 8$

$m = -4$

$b = -8 (0, -8)$

check: $y = -8 - (4 \cdot 0) \checkmark$

(2, 0) $y = 0 \checkmark$

10. $y - 3x = 9$



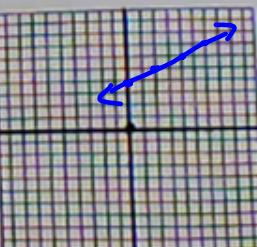
11. $2x - 4y = -16$

$-4y = -2x - 16$

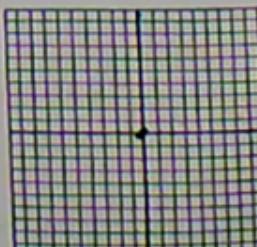
$\frac{-4y}{-4} = \frac{-2x - 16}{-4}$

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

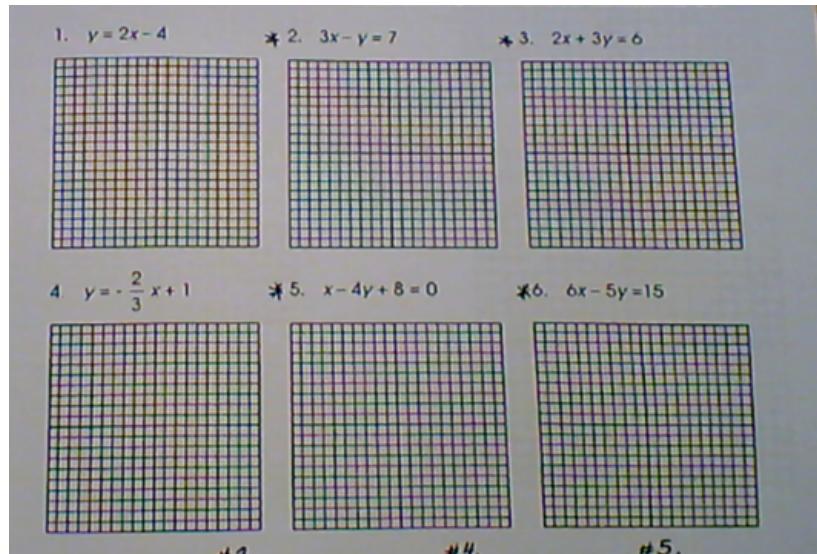
12. $3x + 3y + 4 = 0$



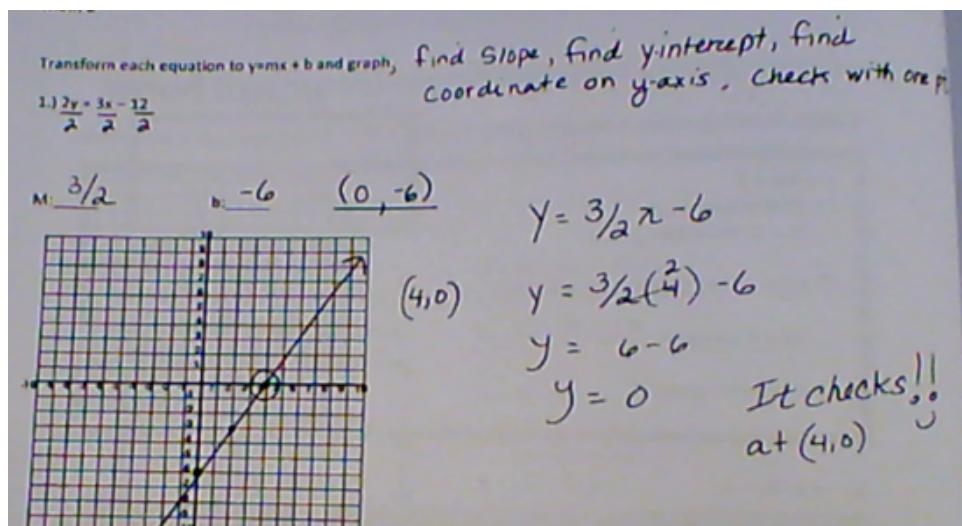
13. $3x + 3y + 4 = 0$



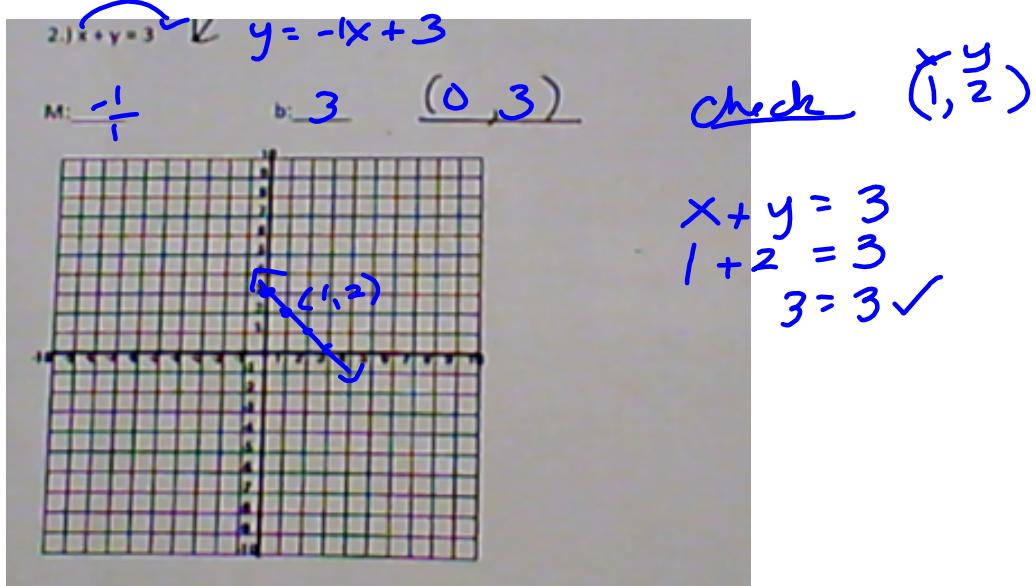
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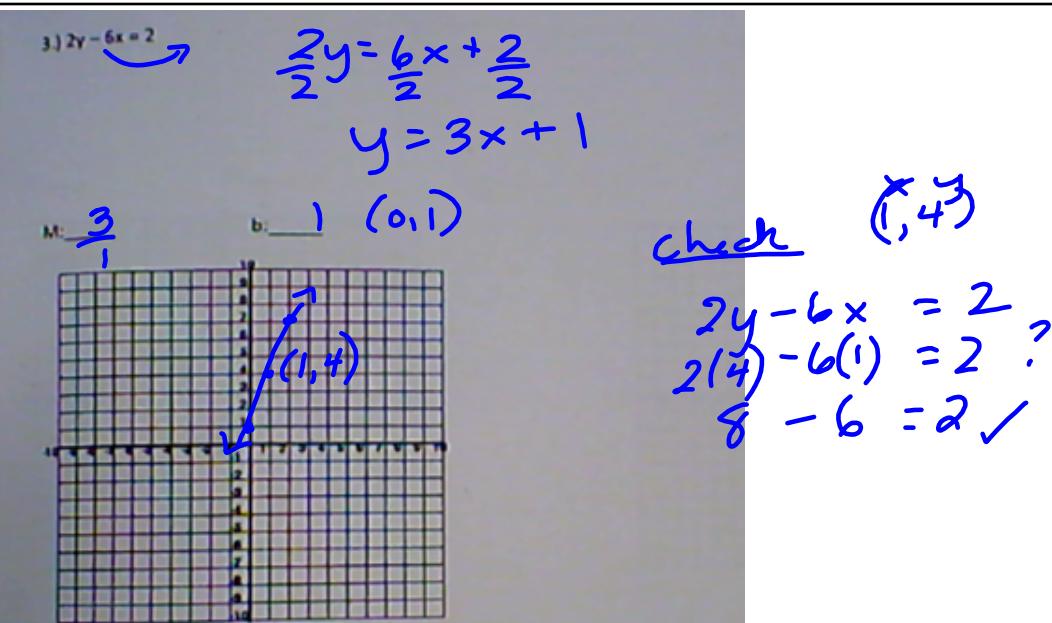
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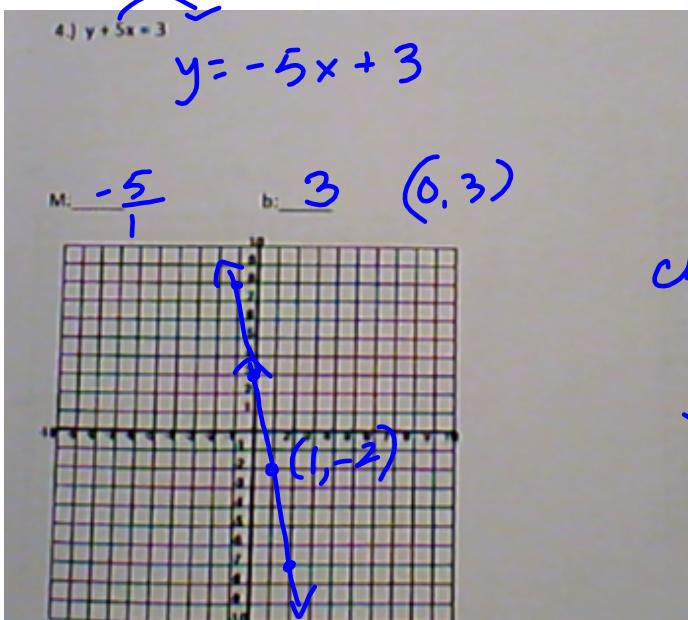
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Mar 24-12:58 PM



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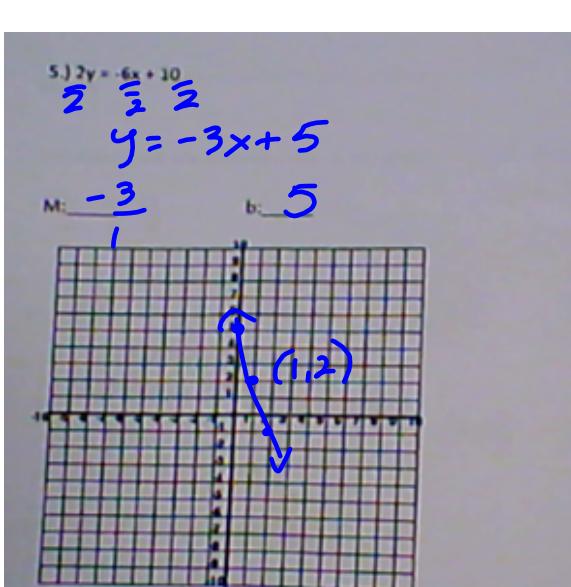
check $(1, -2)$

$$y + 5x = 3$$

$$-2 + 5(1) = 3$$

$$-2 + 5 = 3 \checkmark$$

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check a pt. $(1, 2)$

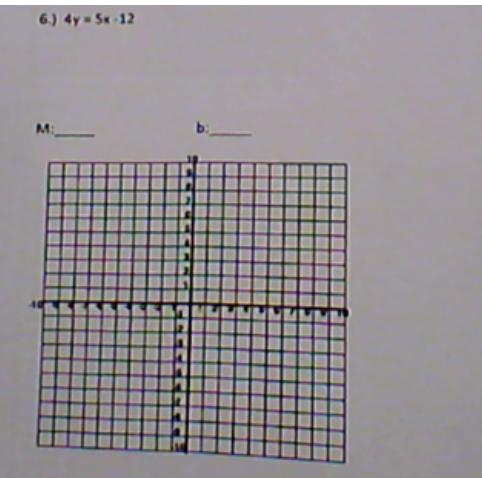
$$2y = -6x + 10$$

$$2(2) = -6(1) + 10$$

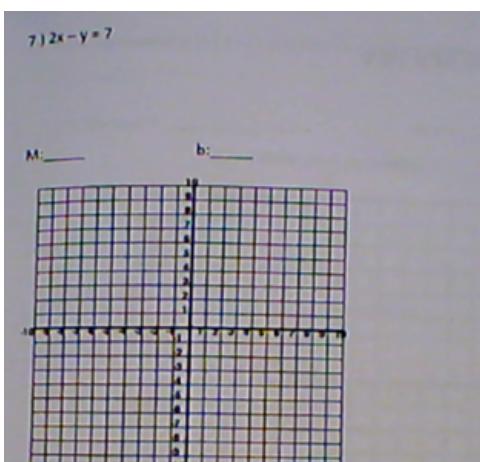
$$4 = -6 + 10 \checkmark$$

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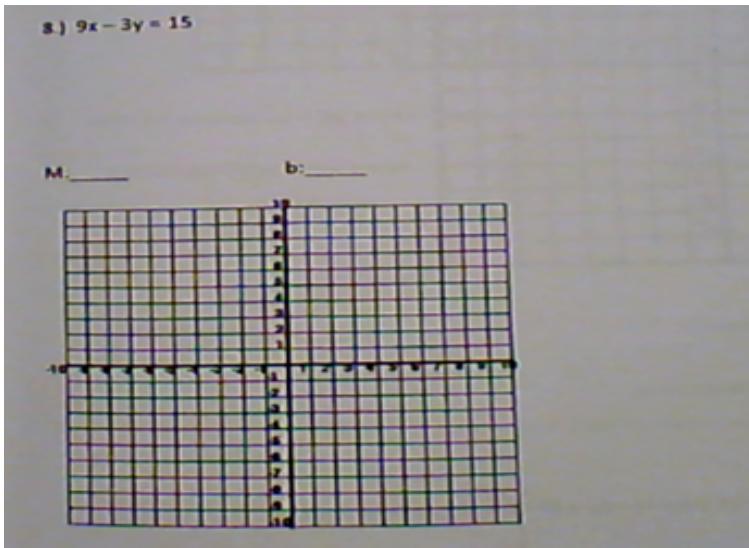
Module 4 Topic C Lesson 7 graphing linear equations from intercepts.notebook March 28, 2017



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Lesson 23: The Defining Equation of a Line

1. Graph the equation $9x + 3y = 18$ using intercepts.

x-intercept (Hint: when $y = 0$)

$$9x + 3(0) = 18$$

$$9x = 18$$

$$x = 2$$

x-intercept = (2, 0)

y-intercept (Hint: when $x = 0$)

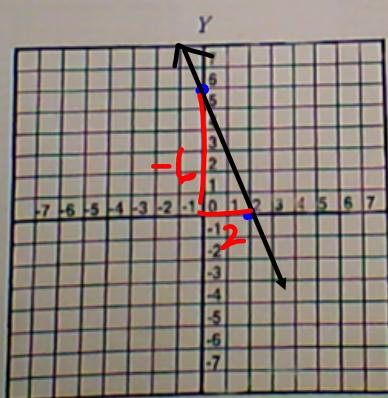
$$9(0) + 3y = 18$$

$$3y = 18$$

$$y = 6$$

y-intercept = (0, 6)

p. 69 gr



$$m = \frac{6}{2} = -3$$

Equation

$$y = mx + b$$

$$y = -3x + 6$$

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a. Graph the equation $y = -3x + 6$ on the same coordinate plane.

same line

b. What do you notice about the graphs of $9x + 3y = 18$ and $y = -3x + 6$? Why do you think this is so?

$$\begin{aligned} 9x + 3y &= 18 \\ \frac{3y}{3} &= -9x + \frac{18}{3} \\ y &= -3x + 6 \end{aligned}$$

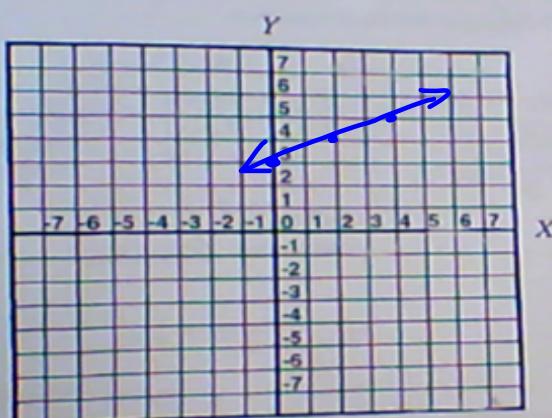
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2. Graph the equation $y = \frac{1}{2}x + 3$ using the y-intercept and the slope.

y-intercept = $(0, 3)$

slope = $\frac{1}{2}$ up 1 over 2

$$\begin{aligned} y &= \frac{1}{2}(0) + 3 \\ y &= 3 \end{aligned}$$



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a. Graph the equation $4x - 8y = -24$ using intercepts on the same coordinate plane.

x-intercept (Hint: when $y = 0$)

$$4x - 8(0) = -24$$

$$+4x = -24$$

$$x = -6$$

$$\text{x-intercept} = (-6, 0)$$

y-intercept (Hint: when $x = 0$)

$$4(0) - 8y = -24$$

$$-8y = -24$$

$$y = 3$$

$$\text{y-intercept} = (0, 3)$$

+6 | 0 | 3
x | y

3
 $\frac{3}{-6} = +\frac{1}{2}$

b. What do you notice about the graphs of $y = \frac{1}{2}x + 3$ and $4x - 8y = -24$? Why do you think this is so?

$$-\frac{8y}{8} = -\frac{4x}{8} - \frac{24}{8}$$

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

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Graphing Linear Equations Using Intercepts

 when $y = 0$  when $x = 0$

Find the x-intercept and y-intercept for each equation.

1) $2y + 4x = -20$

$$2y + 4x = -20$$

$$2(0) + 4x = -20$$

$$4x = -20$$

$$x = -5$$

x-intercept: $(-5, 0)$

y-intercept: $(0, -10)$

2) $3y = 4x - 12$

$$3y = 4x - 12$$

$$3(0) = 4x - 12$$

$$0 = 4x - 12$$

$$12 = 4x$$

$$x = 3$$

x-intercept: $(3, 0)$

y-intercept: $(0, -4)$

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3) $-6x + 2y = 6$

$$\begin{aligned} -6(0) + 2y &= 6 \\ 2y &= 6 \\ y &= 3 \end{aligned}$$

$$\begin{aligned} -6x + 2(0) &= 6 \\ -6x &= 6 \\ x &= -1 \end{aligned}$$

x-intercept: (-1, 0)
y-intercept: (0, 3)

4) $18 = 4x + \frac{1}{2}y$

x-intercept: _____
y-intercept: _____

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5) $10 - 2y = 20x$

x-intercept: _____
y-intercept: _____

6) $3 + 0.4x = 9y$

x-intercept: _____
y-intercept: _____

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Graphing Linear Equations Using Intercepts

GRAPH the equations using the x-intercept and the y-intercept.

7) $6x - 2y = 12$

8) $y = -3x + 3$

x-intercept: _____

y-intercept: _____

x-intercept: _____

y-intercept: _____

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9) $4y - 12 = 3x$

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

x-intercept: _____

y-intercept: _____

x-intercept: _____

y-intercept: _____

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11) $3x - 6 = 4y$

$$\begin{aligned}
 3(0) - 6 &= 4y \\
 -\frac{6}{4} &= \frac{4}{4}y \\
 -1\frac{1}{2} &= y
 \end{aligned}$$

x-intercept: $(2, 0)$
y-intercept: $(0, -1\frac{1}{2})$

12) $8y - 16 = 32x$

$$\begin{aligned}
 x - 6 &= 4(0) \\
 3x - 6 &= 0 \\
 3x &= 6 \\
 x &= 2
 \end{aligned}$$

x-intercept: _____
y-intercept: _____

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Problem Set

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Graph each of the equations in the Problem Set on a different pair of x and y axes.

1. Graph the equation: $y = -6x + 12$.
2. Graph the equation: $9x + 3y = 18$.
3. Graph the equation: $y = 4x + 2$.
4. Graph the equation: $y = -\frac{2}{7}x + 4$.

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Lesson 19

5. Graph the equation: $\frac{3}{4}x + y = 8$.
6. Graph the equation: $2x - 4y = 12$.
7. Graph the equation: $y = 3$. What is the slope of the graph of this line?
8. Graph the equation: $x = -4$. What is the slope of the graph of this line?
9. Is the graph of $4x + 5y = \frac{3}{7}$ a line? Explain.
10. Is the graph of $4x^2 - 2y = 7$ a line? Explain.

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