

# Warmup $12/(6 \times 3! + 6) \div 7$

**\*\*\*Make sure there is a whiteboard, marker, & eraser in your desk.\*\*\***

1. Find as many points as you can that would be on the graph of the equation  $5x + 2y = 60$ .

(12, 0)

(14, -5)

(6, 15)

(4, 20)

(0, 30)

(8, 10)

(10, 5)

(2, 25)

(1, 27.5)

(20, -20)

(9, 7.5)

Guided Notes from yesterday...

## Another strategy...

- If an equation is not in slope-intercept form, you can PUT it in slope intercept form:
- (Get y by itself!)

•  $y - 3x = 8$   
 $+3x + 3x$

Not like terms –  
do not combine!

$$y = 8 + 3x \text{ or}$$

$$y = 3x + 8$$

# Getting y by itself

$$\begin{array}{r} x + y = 8 \\ -x \quad -x \hline \end{array}$$

$$y = 8 - x$$

$$\begin{array}{r} 4x + 2y = 20 \\ -4x \quad -4x \hline \end{array}$$

$$\begin{array}{r} \frac{2y}{2} = \frac{20}{2} - \frac{4x}{2} \\ y = 10 - 2x \end{array}$$

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

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

To graph an equation that is NOT in slope-intercept form:

- **Make a table and figure out numbers that work in the equation (at least 2 points)**

**OR**

- **Get  $y$  by itself, then graph using slope-intercept rules**

## Example 8

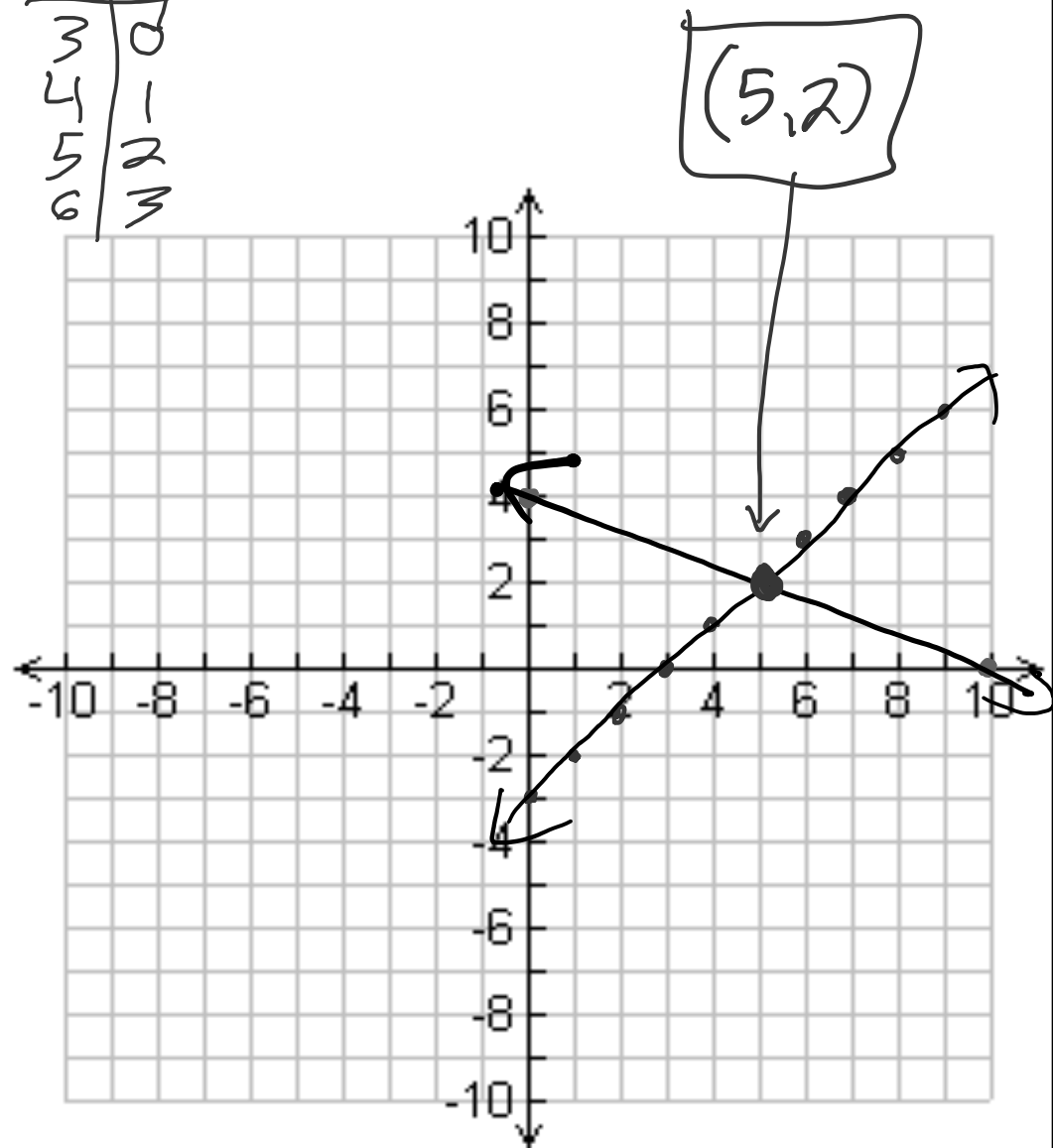
$$\begin{cases} x - y = 3 \\ 2x + 5y = 20 \end{cases}$$

$-2x$   $-2x$

$$\frac{5y}{5} = \frac{20}{5} - \frac{2x}{5}$$

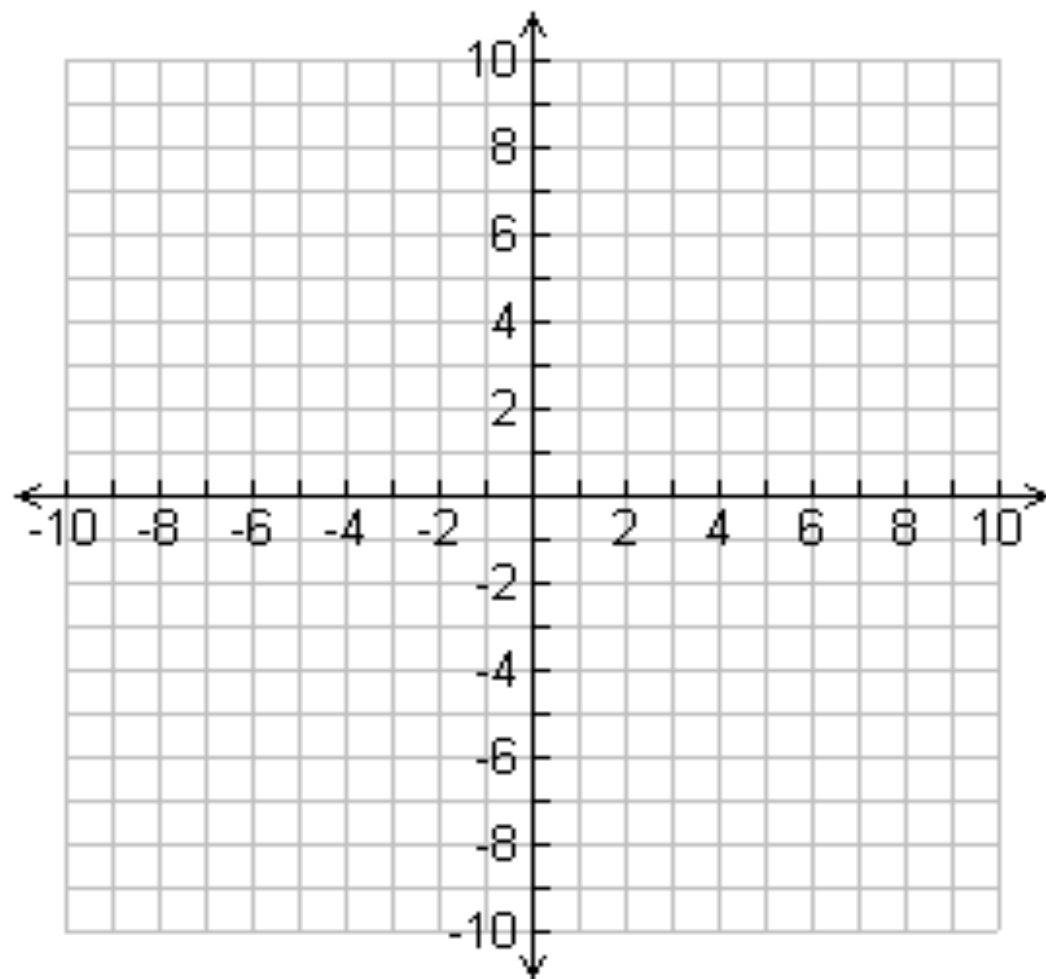
$$y = 4 - \frac{2}{5}x$$

| x | y |
|---|---|
| 3 | 0 |
| 4 | 1 |
| 5 | 2 |
| 6 | 3 |



## Example 9

$$\begin{cases} y - 3x = 8 \\ \frac{1}{4}x = y + 3 \end{cases}$$

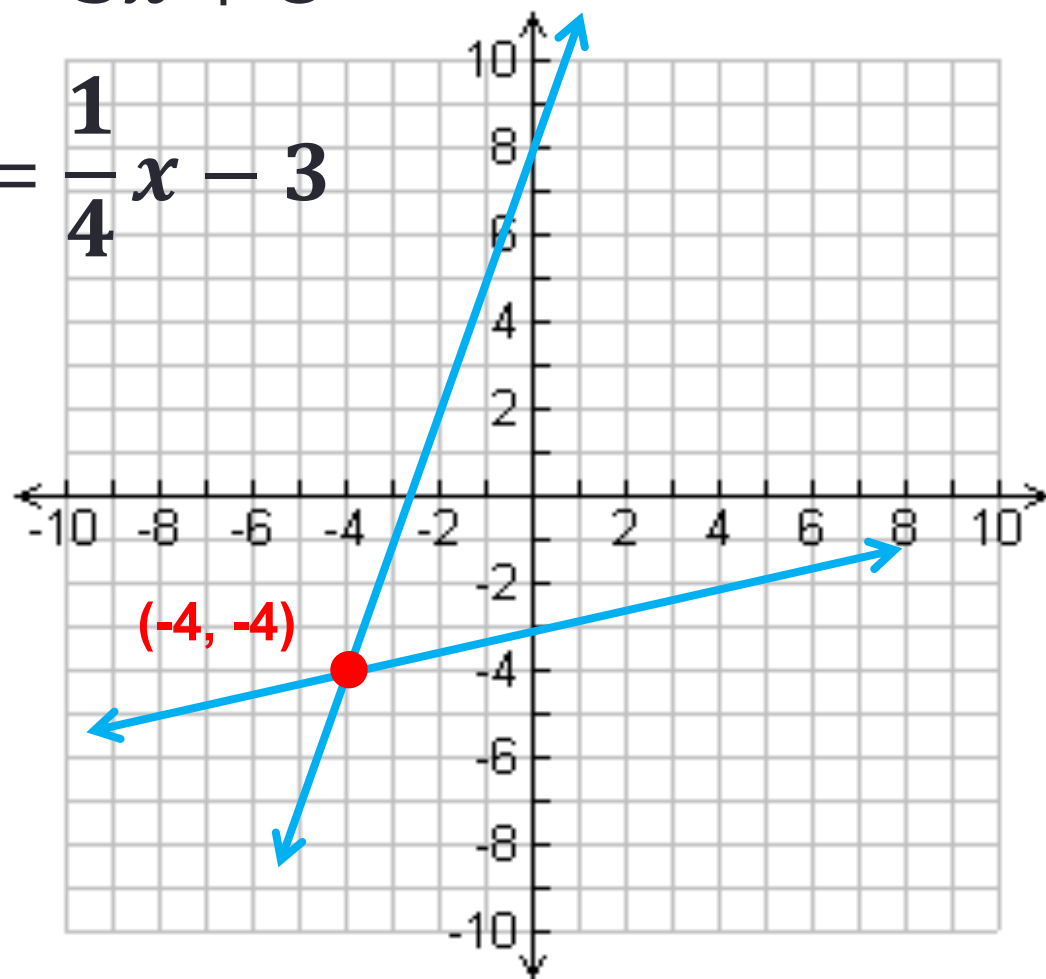


## Example 9

$$\begin{cases} \cancel{y - 3x = 8} \\ \cancel{\frac{1}{4}x = y + 3} \end{cases}$$

$$y = 3x + 8$$

$$y = \frac{1}{4}x - 3$$





# A little bit of time...

- To finish/check/compare #13, 14, 15

# Another way to solve systems...

- Look at #2 on your homework.

$$\begin{cases} y = 2x - 8 \\ y = -3x + 7 \end{cases}$$

Since  $y =$  both, you can set them equal to each other

$$2x - 8 = -3x + 7$$

Then solve...

- $x = 3$  (Does this match your original answer?)
- How can we get  $y$ ?

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## **Solving Systems by Substitution**

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### **Objective:**

**-Use a new strategy (substitution) to solve systems of equations. (No graphs, just pencil/paper)**

# WHITEBOARDS

# Solve the System of Equations using Substitution

$$x + y = 10$$

$$y = 2$$

**(8, 2)**

Solve the System of Equations using  
Substitution

$$5x + 5y = 100$$

$$y = 5$$

**(15, 5)**

# Solve the System of Equations using Substitution

$$y = x + 100$$

$$y = 45$$

$$(-55, 45)$$



Solve the System of Equations using  
Substitution

$$3x + 10y = 20$$

$$x = 6$$

$$(6, \frac{1}{5})$$

# Solve the System of Equations using Substitution

$$4x + y = 24$$

$$y = 2x$$

Now find y:

$$4x + y = 24$$

$$4x + 2x = 24$$

$$6x = 24$$

$$x = 4$$

$$y = 2x$$

$$y = 2(4)$$

$$y = 8$$

$$(4, 8)$$

# Homework (Due Monday)

- p.247 (1 – 10, 14, 15)