

Bell Work (10 – 12 minutes)

Solve for x:

$$|3x - 5| + 7 = 26$$

Solve for x:

$$12 > 4|2x+7|$$

Put these examples in your notes... you can use them for the quiz that we will take next class time.

**The next slide will help if needed.*

Solve for x:

$$\begin{array}{r} |3x - 5| + 7 = 26 \\ -7 \quad -7 \\ \hline \end{array}$$

$$|3x - 5| = 19$$

There are two possible answers...

$$\begin{array}{rcl} 3x - 5 = 19 & \text{or} & 3x - 5 = -19 \\ +5 & +5 & +5 \\ \hline 3x = 24 & & 3x = -14 \end{array}$$

$$x = 8 \quad \text{or} \quad x = -14/3$$

Solve for x:

$$\begin{array}{r} 12 > 4|2x+7| \\ 4 \qquad 4 \\ \hline \end{array}$$

$$3 > |2x + 7|$$

There are two possible answers...

$$3 > 2x + 7 \quad \text{or} \quad -3 < 2x + 7$$

$$-4 > 2x \quad \text{or} \quad -10 < 2x$$

$$-2 > x \quad \text{or} \quad -5 < x$$

Doesn't flip because we divided by a positive 2

*Flip sign
Because
Answer
Was
negative*

From Last Time... (18 – 20 minutes)

New Material

Page 45 #2-5, 29, 45, 65

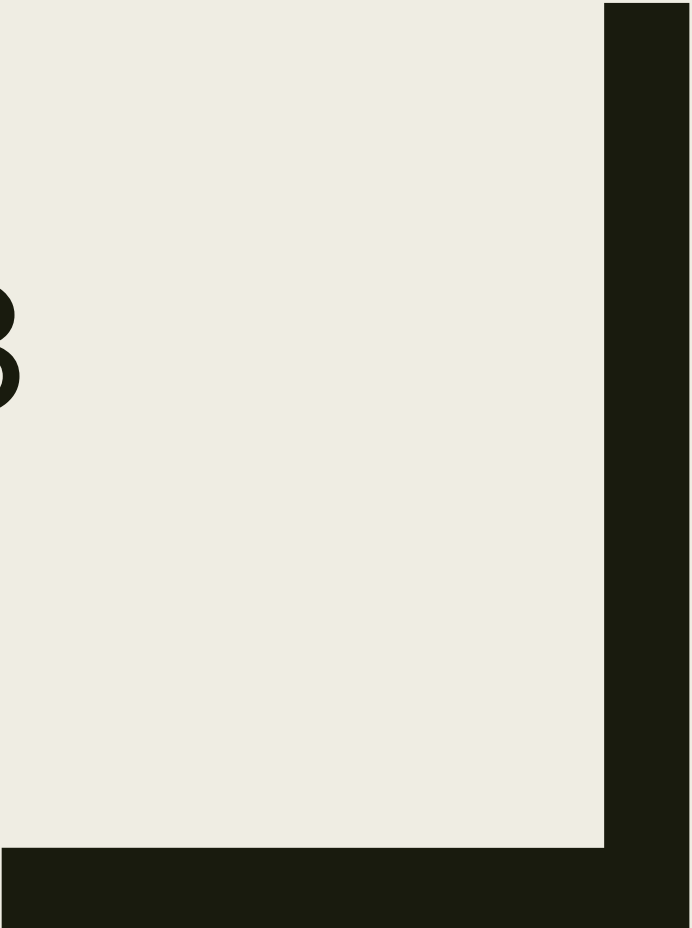
Mixed Review

Page 48 #96, 99



ALGEBRA 3

Day 11



Chapter 2 Section 3

Linear Equations

(20 – 30 minutes)

Objective: To write, graph, and solve linear equations

3 Linear Function Formulas

1.) *slope* $\rightarrow \frac{\text{vertical change (rise)}}{\text{horizontal change (run)}} = \frac{y_2 - y_1}{x_2 - x_1}$

2.) *slope – intercept form* $\rightarrow y = mx + b$

3.) *point – slope form* $\rightarrow y - y_1 = m(x - x_1)$

Note: the points are (x_1, y_1) and (x_2, y_2) and slope is m

Don't Memorize Them, Apply Them

Given the following two points, find the slope, write the equation.

$(-6, 4)$ and $(-2, -12)$

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(x_1, y_1) and (x_2, y_2)

$(-6, 4)$ and $(-2, -12)$

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{(-12) - (4)}{(-2) - (-6)} = \frac{-16}{4} = -4$$

point – slope form $\rightarrow y - y_1 = m(x - x_1)$

$$y - (4) = -4(x - (-6)) \rightarrow y - 4 = -4x - 24 \rightarrow \mathbf{y = -4x + 28}$$

Given the following two points, find the slope, write the equation – with color to help visualize.

$$(\textcolor{red}{x}_1, \textcolor{blue}{y}_1) \text{ and } (\textcolor{green}{x}_2, \textcolor{violet}{y}_2)$$

$$(\textcolor{red}{-6}, \textcolor{blue}{4}) \text{ and } (\textcolor{green}{-2}, \textcolor{violet}{-12})$$

$$\text{slope} = \frac{\textcolor{violet}{y}_2 - \textcolor{blue}{y}_1}{\textcolor{green}{x}_2 - \textcolor{red}{x}_1} = \frac{(\textcolor{violet}{-12}) - (\textcolor{blue}{4})}{(\textcolor{green}{-2}) - (\textcolor{red}{-6})} = \frac{-16}{4} = \textcolor{yellow}{-4}$$

$$\text{point - slope form} \rightarrow y - y_1 = m(x - \textcolor{red}{x}_1)$$

$$y - (\textcolor{blue}{4}) = \textcolor{yellow}{-4}(x - (\textcolor{red}{-6})) \rightarrow y - 4 = -4x - 24 \rightarrow y = -4x + 28$$

What else could they ask us?

Given: $(-6, 4)$ and $(-2, -12)$

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Given: $(-6, 4)$ and $(-2, -12)$

Some Examples:

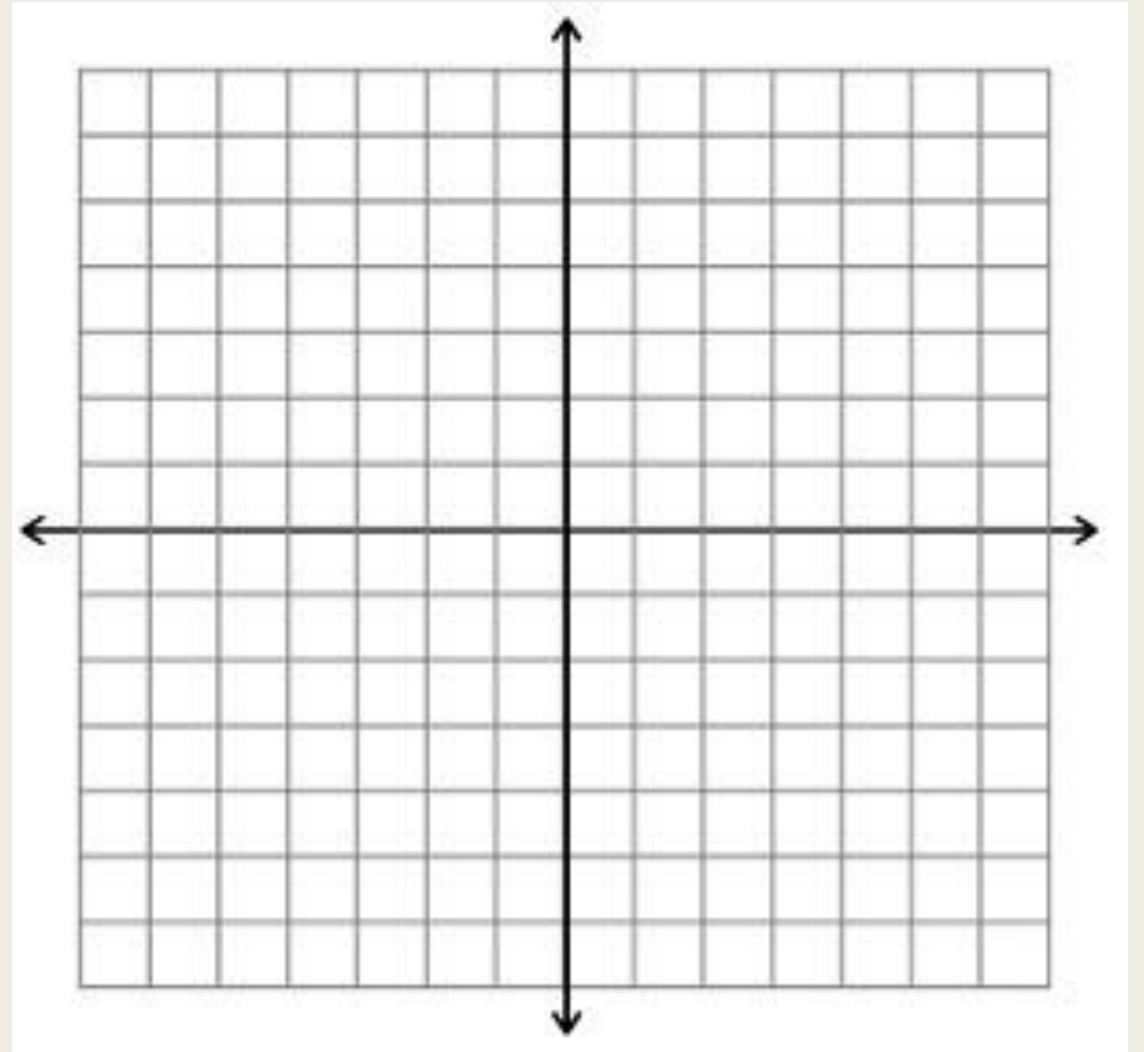
What is the distance between (how far apart are they) these two points?

What is the midpoint of these two points?

Graph.

Graph the following. Is it a function?

$$4y - 2x = -12$$

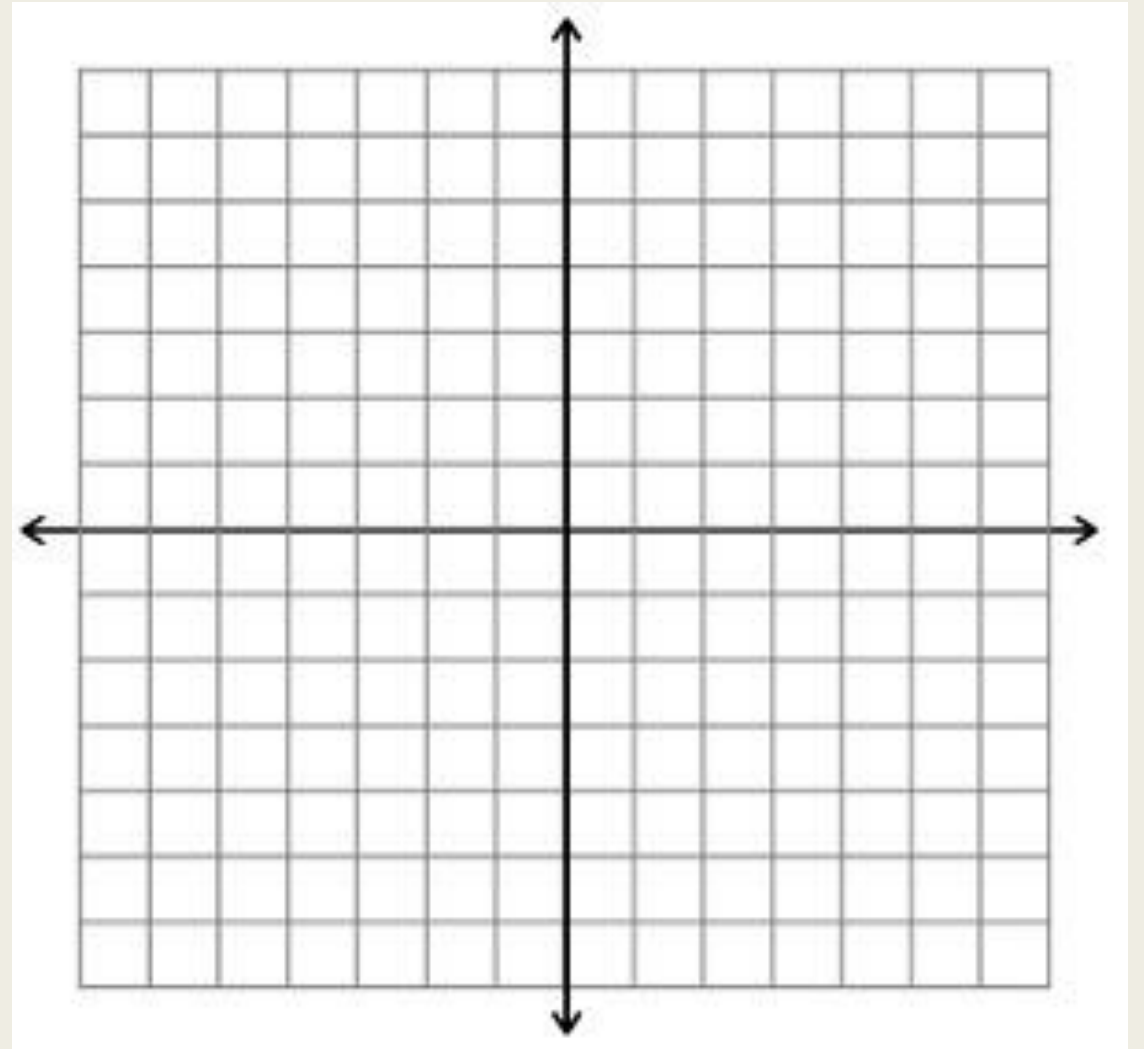


Graph the following. Is it a function?

$$4y - 2x = -12$$

Plug in the following x and solve for y

x	y
-2	
-1	
0	
1	
2	

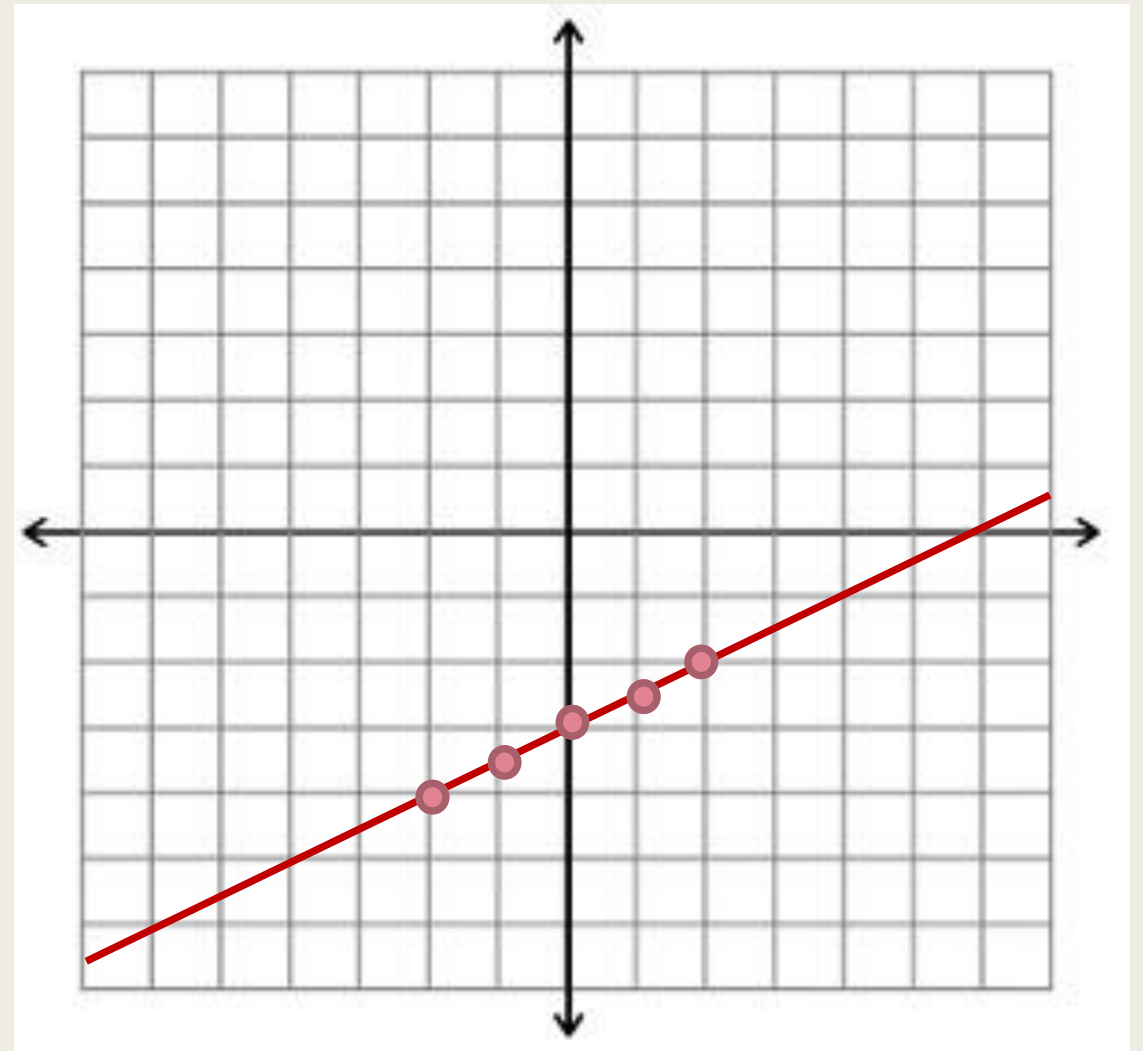


Graph the following.

$$4y - 2x = -12$$

Graph the following points now

X	y
-2	-4
-1	$-14/4 = -3.5$
0	-3
1	$-10/4 = -2.5$
2	-2



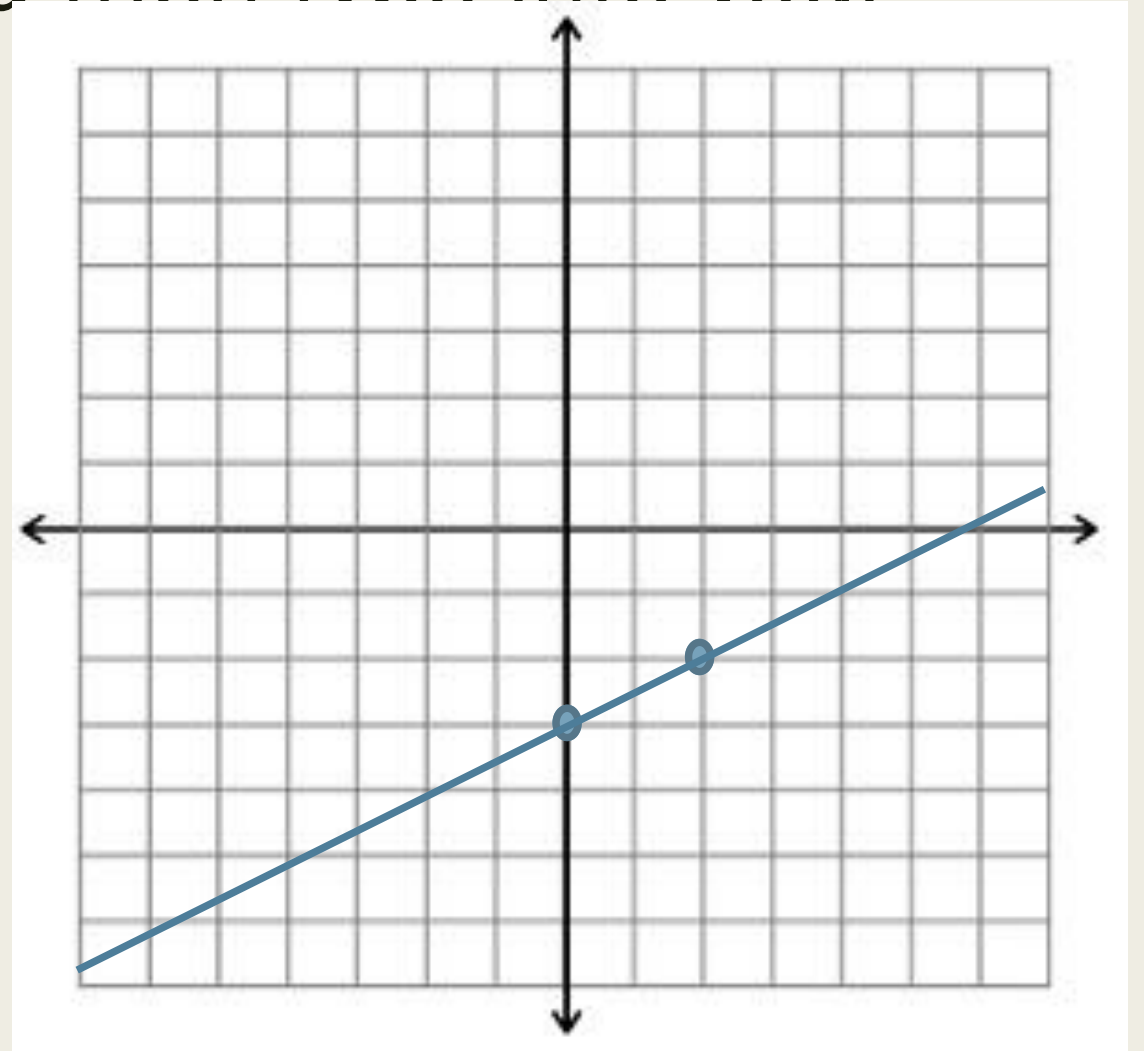
Graph the following. Another option... solve the equation for y and then type into your calculator!

$$4y - 2x = -12$$

$$4y = 2x - 12$$

$$y = \frac{2x - 12}{4}$$

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



Quick Check for Understanding

Describe the slope between the following two special cases.

$(4, 2)$ and $(4, -6)$

Can you write the equation of the line that passes through these two points?

Can you graph the line?

For Next Time... (20 – 30 minutes)

New Material

Page 78 #4-6, 23, 31, 37, 50

Mixed Review

Page 80 #68, 69, 71