

Warm up

1. Decide whether the given ordered pair is a solution of the equation.

a) $-5x - 8y = 7$ $(-3, 1)$

$$-5(-3) - 8(1) = 7$$

$$15 - 8 = 7$$

$$7 = 7 \checkmark$$

yes

b) $y = -4$ $(-4, 8)$

$$8 \neq -4$$

NO

2. Rewrite the equation in function form and find three different ordered pairs that are solutions of the equation. (Hint: make a table of values!)

a) $x + 4y = 48$

$$4y = 48 - x$$

$$y = \frac{48 - x}{4}$$

$$y = 12 - \frac{1}{4}x$$

x	y
-1	$\frac{49}{4}$
0	12
1	$\frac{47}{4}$

$$\frac{48 - (-1)}{4} = \frac{49}{4}$$

$$\frac{48 - 0}{4} = \frac{48}{4}$$

b) $-2x - 2y = 4$

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


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

x	y
-2	0
0	-2
2	4

$$\frac{4 + 2(-2)}{-2} = \frac{0}{-2} = 0$$

$$\frac{4 + 2(2)}{-2} = \frac{8}{-2} = -4$$

Homework Questions?



On the top of your paper (by your name) rate yourself for this section:

4 - I can summarize the concepts and explain it to others

3 - I can apply the concept to answer questions correctly

2 - I can apply the concepts but with some mistakes

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4.4 Graphing Lines Using Intercepts

Goals: • Find the intercepts of the graph of a linear equation and then use them to make a quick graph of the equation.

EQ: What is the process for graphing using intercepts?

The Unit Organizer NAME _____
DATE _____ Mo/Date/Year

← Algebra 1.5 →

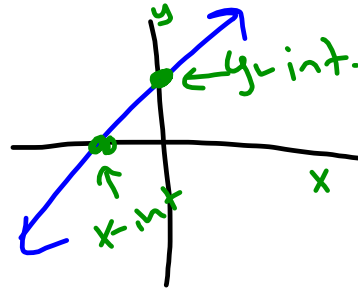
② LAST UNIT/Experience Solving Linear Equations	① CURRENT UNIT Graphing Linear Equations & Functions	③ NEXT UNIT/Experience Writing Linear Equations
⑧ Student Activities or Assignments 4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8	⑤ UNIT MAP 	
⑦ UNIT SELF-TEST QUESTIONS 1. How do you use a table to graph a line? 2. How do I find the intercepts in order to graph a line? 3. How can I calculate the slope with coordinates, or a graph, or a real world situation? 4. How do I write and solve a direct variation model? 5. How can I graph a line using the slope and y-intercept? 6. How can I determine a function and then evaluate it?	⑥ UNIT RELATIONSHIPS Graph Determine Identify Calculate	

Vocabulary

x-intercept:

where the graph crosses the x-axis

$$(x, 0)$$



y-intercept:

where the graph crosses the y-axis

$$(0, y)$$

Example 1: Find x- and y-intercepts

Find the x- and y-intercepts of the graph of the equation $-3x + 4y = 12$.

$$\begin{array}{l}
 \text{x-int} \\
 y = 0 \\
 \hline
 -3x + \cancel{4(0)} = 12 \\
 -3x = 12 \\
 \frac{-3x}{-3} = \frac{12}{-3} \\
 \boxed{x = -4} \\
 (-4, 0)
 \end{array}$$

$$\begin{array}{l}
 \text{y-int} \\
 x = 0 \\
 \hline
 -\cancel{3(0)} + 4y = 12 \\
 4y = 12 \\
 \frac{4y}{4} = \frac{12}{4} \\
 \boxed{y = 3} \\
 (0, 3)
 \end{array}$$

Try It

 Complete the following exercise.

1. Find the x-intercept and the y-intercept of the graph of the equation $2x - 5y = 10$.

$$\begin{array}{l}
 \text{x-int} \\
 \underline{y = 0} \\
 2x - 5(\cancel{0}) = 10 \\
 2x = 10 \\
 \frac{2x}{2} = \frac{10}{2} \\
 \text{x} = 5 \\
 \text{x-int: } (5, 0)
 \end{array}
 \qquad
 \begin{array}{l}
 \text{y-int} \\
 \underline{x = 0} \\
 \cancel{2}(0) - 5y = 10 \\
 -5y = 10 \\
 \frac{-5y}{-5} = \frac{10}{-5} \\
 y = -2 \\
 \text{y-int: } (0, -2)
 \end{array}$$

SUMMARY

Making a Quick Graph

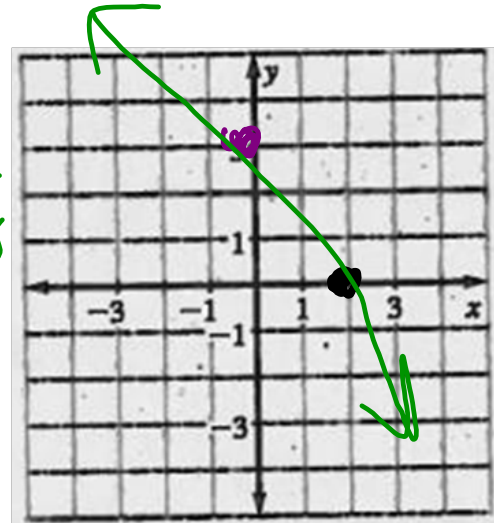
- STEP 1** Find the intercepts.
- STEP 2** Draw a coordinate plane that includes the intercepts.
- STEP 3** Plot the intercepts and draw a line through them.

*Note: The Quick Graph process works because only two points are needed to determine a line.

Example 2: Make a Quick GraphGraph the equation $9x + 6y = 18$.

$$\begin{array}{l} \text{x-int} \\ y=0 \\ \hline 9x + \cancel{6(0)} = 18 \\ 9x = 18 \\ \frac{9x}{9} = \frac{18}{9} \\ \text{x-int } \boxed{x=2} \\ (2, 0) \end{array}$$

$$\begin{array}{l} \text{y-int} \\ x=0 \\ \hline \cancel{9(0)} + 6y = 18 \\ 6y = 18 \\ \frac{6y}{6} = \frac{18}{6} \\ \text{y-int } \boxed{y=3} \\ (0, 3) \end{array}$$

**4.4 Day 1 Homework****Axis Graphing Worksheet**

Warm Up - Week 10

Find the x-intercept and y-intercept of the equation

1) $3x - 6y = 18$

x-int
 $y=0$

$$3x - \cancel{6y} = 18$$

$$\frac{3x}{3} = \frac{18}{3}$$

$$x = 6$$

$$(6, 0)$$

y-int
 $x=0$

$$\cancel{3x} - 6y = 18$$

$$\frac{-6y}{-6} = \frac{18}{-6}$$

$$y = -3$$

$$(0, -3)$$

2) $y = -2x + 50$

x-int
 $y=0$

$$0 = -2x + 50$$

$$\frac{-50}{-2} = \frac{-2x}{-2}$$

$$25 = x$$

$$(25, 0)$$

y-int
 $x=0$

$$y = -2(\cancel{x}) + 50$$

$$y = 50$$

$$(0, 50)$$

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Algebra 1.5

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Example 2: Make a Quick Graph

Graph the equation $9x + 6y = 18$.

x-int
 $y = 0$

$9x + \cancel{6y} = 18$

$\frac{9x}{9} = \frac{18}{9}$

$x = 2$

x-int
 $(2, 0)$

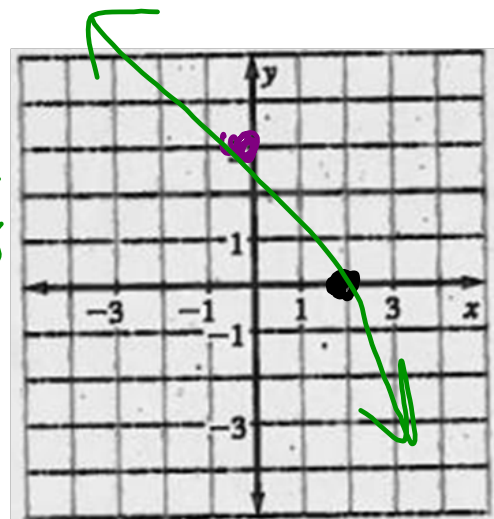
y-int
 $x = 0$

$\cancel{9x} + 6y = 18$

$\frac{6y}{6} = \frac{18}{6}$

$y = 3$

y-int
 $(0, 3)$



Try It Complete the following exercise.

2. Graph the equation $-4x + 5y = 20$.

$$\begin{array}{l} \text{x-int} \\ y=0 \end{array}$$

$$-4x + 5(0) = 20$$

$$\frac{-4x}{-4} = \frac{20}{-4}$$

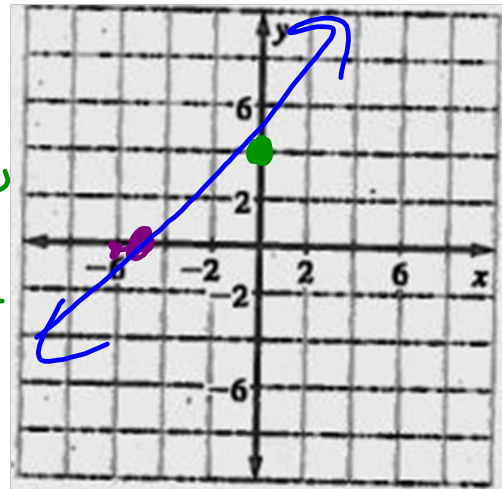
$$\begin{array}{l} x = -5 \\ \boxed{(-5, 0)} \end{array}$$

$$\begin{array}{l} \text{y-int} \\ x=0 \end{array}$$

$$-4(0) + 5y = 20$$

$$\frac{5y}{5} = \frac{20}{5}$$

$$\begin{array}{l} y = 4 \\ \boxed{(0, 4)} \end{array}$$



Example 3: Choose Appropriate Scales

Graph the equation $y = 5x + 35$.

$$\begin{array}{l} \text{x-int} \\ y=0 \end{array}$$

$$0 = 5x + 35$$

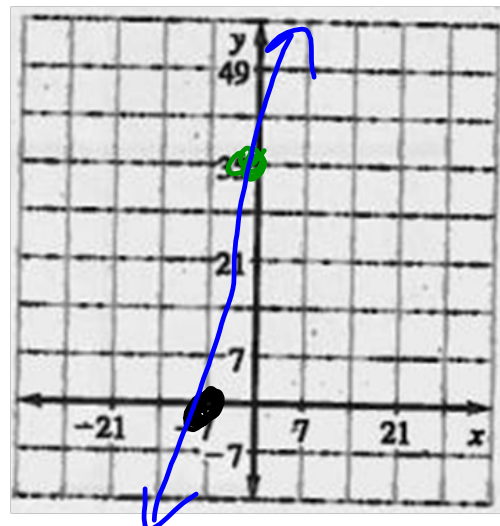
$$\frac{-35}{5} = \frac{5x}{5}$$

$$\begin{array}{l} -7 = x \\ \boxed{(-7, 0)} \end{array}$$

$$\begin{array}{l} \text{y-int} \\ x=0 \end{array}$$

$$y = 5(0) + 35$$

$$\begin{array}{l} y = 35 \\ \boxed{(0, 35)} \end{array}$$



Hint: When you make a quick graph, find the intercepts *before* you draw the coordinate plane. This will help you find an appropriate scale on each axis.

Summary

EQ: What is the process for graphing using intercepts?

- Find x -int and y -int
 $y=0$ $x=0$

- Write them as a point

- Graph

4.4 Homework

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