

Find the slope and y-intercept.

$$y + 3x - 2y + 6 = 10 - (5x - 16) + y$$

Warm Up

Week 4

*Pick 2 ordered pairs that are integers between -10 and 10

Are you the solution?

$$2x - 3y = 5$$

$$\begin{matrix} (1, -1) \\ x \quad y \end{matrix}$$

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

$$2 + 3 = 5$$

$$5 = 5 \checkmark$$

$$(4, 1)$$

$$2(4) - 3(1) = 5$$

$$8 - 3 = 5$$

$$5 = 5 \checkmark$$

(x, y)

$$(7, 3)$$

$$2(7) - 3(3) = 5$$

$$14 - 9 = 5$$

$$5 = 5$$

$$(10, 5)$$

$$2(10) - 3(5) = 5$$

$$20 - 15 = 5$$

$$5 = 5 \checkmark$$

Homework Questions?

Self Scoring Scale

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

3- I can *apply* the concepts to answer questions correctly.

2- I can *apply* the concepts but with some *mistakes*.

1- I *need help* to know how to apply the concepts.

0- I *can't* apply the concepts even with help.

Ch.6 Test

Was out of 70pts

A- 63

B- 56

C- 49

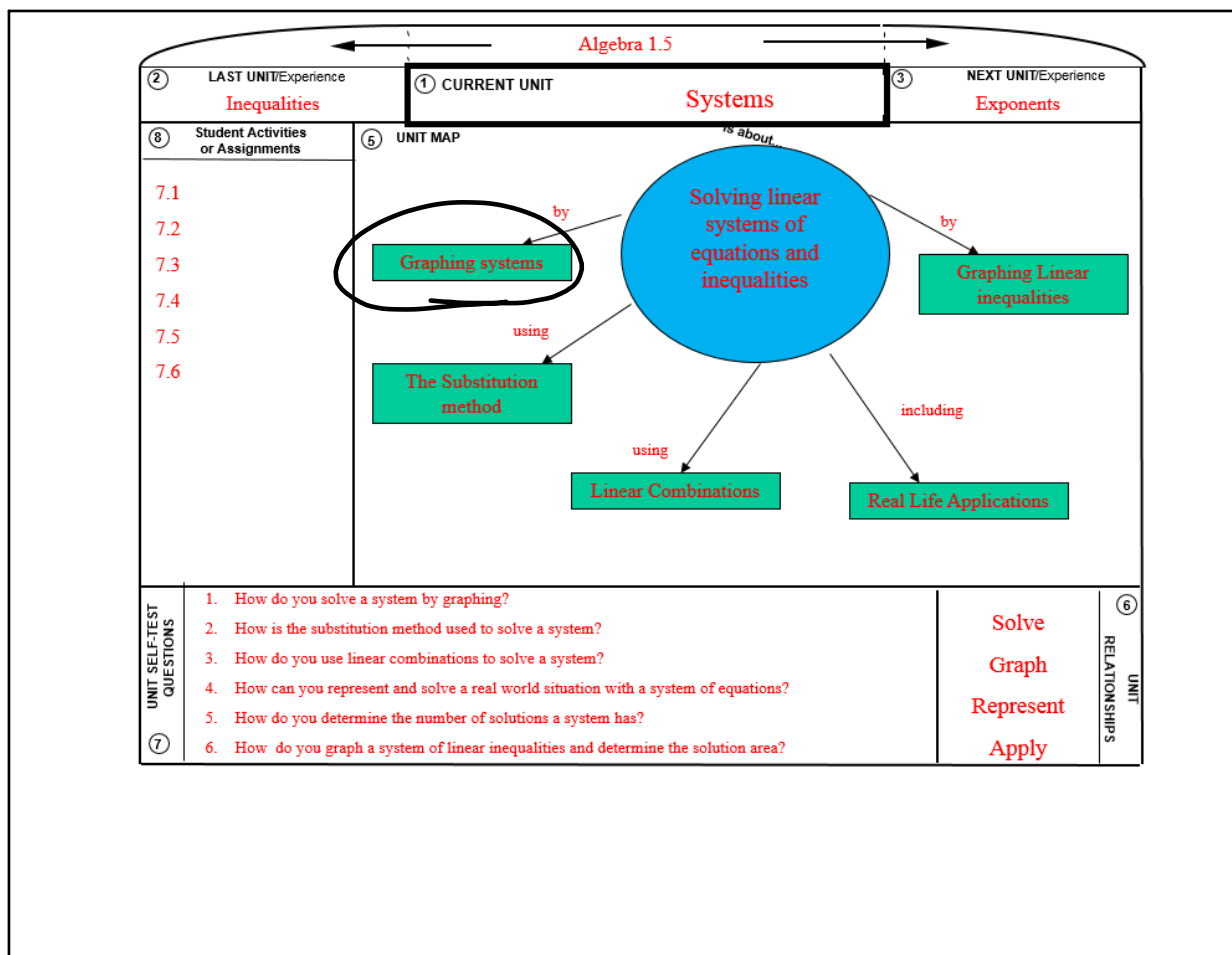
**Retake Due
Tuesday,
January 10th**

45 or lower = RETAKE

7.1 Solving Linear Systems by Graphing

Goals: • Solve a system of linear equations by graphing.

EQ: If you had to teach this method to a friend, how would you describe the process of solving systems by graphing?



Vocabulary

System of linear equations:

2 or more linear equations w/ the same variables

Solution of a system of linear equations:

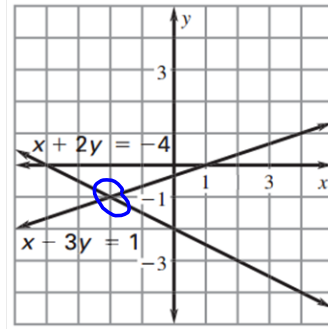
An ordered pair (x, y) that satisfies each equation in the system
 ↳ makes eqn True
 * MUST lie in Both Graphs

Example 1: Find the Point of Intersection

Use the graph at the right to estimate the solution of the linear system. Then check your solution algebraically.

$$x + 2y = -4 \quad \text{Equation 1}$$

$$x - 3y = 1 \quad \text{Equation 2}$$



SOLUTION

$$(-2, -1)$$

The lines appear to intersect once at $(-2, -1)$.

CHECK

$$x + 2y = -4$$

$$\begin{aligned} -2 + 2(-1) &= -4 \\ -2 - 2 &= -4 \\ -4 &= -4 \checkmark \end{aligned}$$

$$x - 3y = 1$$

$$\begin{aligned} -2 - 3(-1) &= 1 \\ -2 + 3 &= 1 \\ 1 &= 1 \checkmark \end{aligned}$$

\therefore Yes, $(-2, -1)$ is soln.

ANSWER

Because $(-2, -1)$ is a solution of each equation, $(-2, -1)$ is the solution of the system of linear equations.

SOLVING A LINEAR SYSTEM USING GRAPH-AND-CHECK

To use the graph-and-check method to solve a system of linear equations in two variables, use the following steps.

Step 1 Write each equation in a form that is easy to graph.

Step 2 Graph both equations in the same coordinate plane.

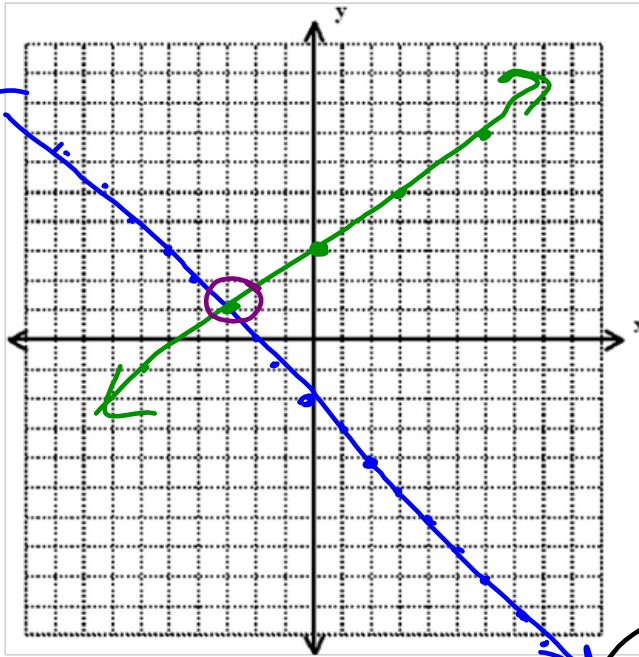
Step 3 Estimate the coordinates of the pt of intersection (where lines cross).

Step 4 Check the coordinates algebraically by substituting into each equation of the original linear system.

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Solve each system by graphing.

1)



$$1) \quad y = -x - 2$$

$$m = -1 \quad b = -2$$

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

$$m = \frac{2}{3} \quad b = 3$$

$$(-3, 1)$$

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

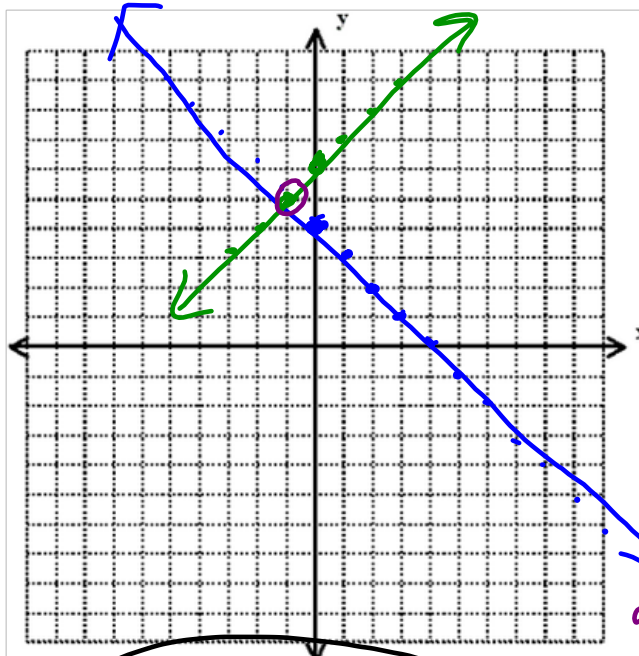
$$1 = 1 \checkmark$$

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

$$1 = 1 \checkmark$$

\therefore Yes, $(-3, 1)$ is soln.

2)



$$2) \quad y = -x + 4$$

$$m = -1 \quad b = 4$$

$$y = x + 6$$

$$m = 1 \quad b = 6$$

$$(-1, 5)$$

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

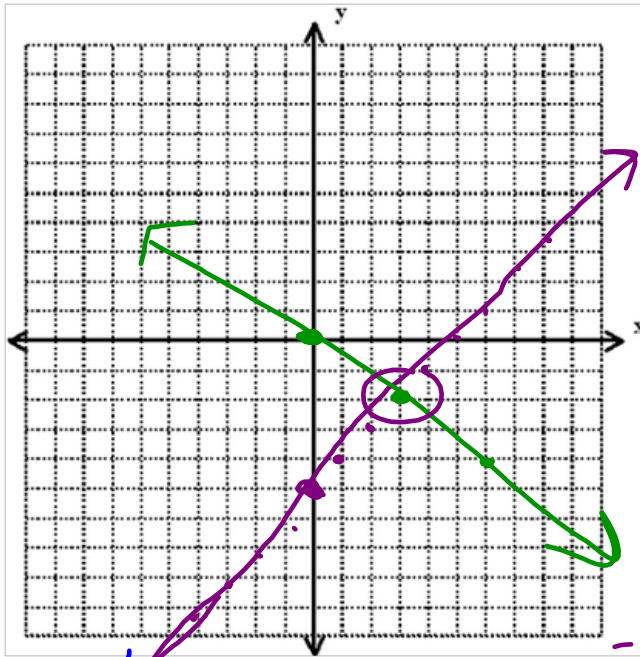
$$5 = 5 \checkmark$$

$$5 = -1 + 6$$

$$5 = 5 \checkmark$$

\therefore Yes, $(-1, 5)$ is soln.

3)



3) $y = x - 5$

$m = 1 \quad b = -5$

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

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

$b = 0$

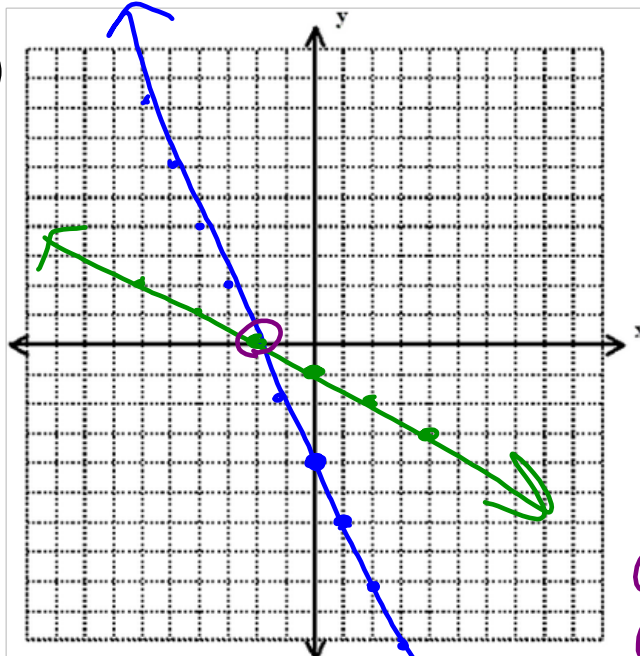
$(3, -2)$

$$-2 = 3 - 5 \quad -2 = -\frac{2}{3}(3)$$

$$-2 = -2 \checkmark \quad -2 = -2 \checkmark$$

∴ Yes, $(3, -2)$ is soln.

4)



4) $y = -2x - 4$

$m = -2 \quad b = -4$

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

$m = -\frac{1}{2} \quad b = -1$

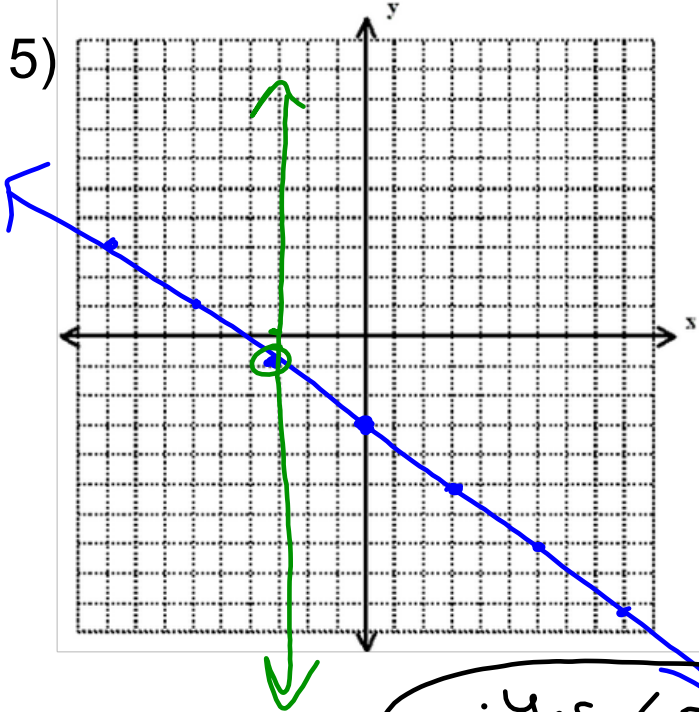
$(-2, 0)$

$$0 = -2(-2) - 4 \quad 0 = \frac{1}{2}(-2) - 1$$

$$0 = 0 \checkmark \quad 0 = 0 \checkmark$$

∴ Yes, $(-2, 0)$ is soln.

5)

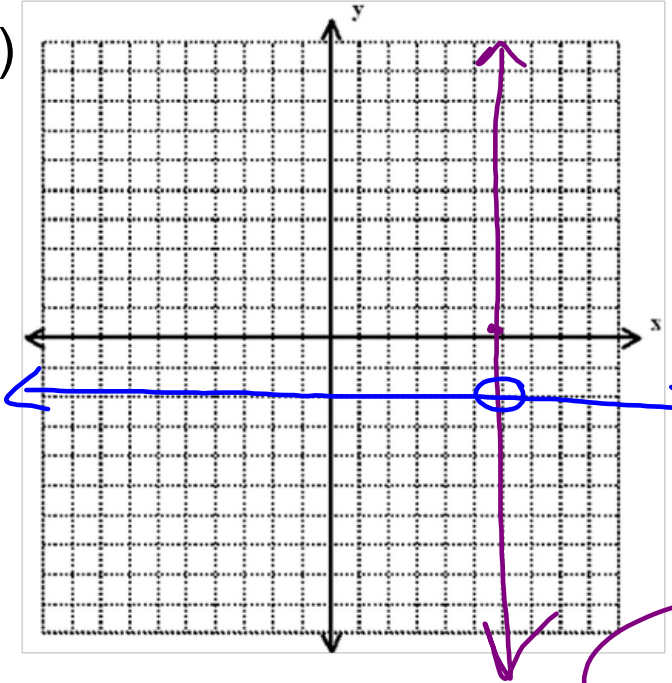


5) $y = -\frac{2}{3}x - 3$
 $m = -\frac{2}{3}$ $b = -3$
 $x = -3$
 undefined

$(-3, -1)$
 $-1 = -\frac{2}{3}(-3) - 3$
 $-1 = -1 \checkmark$
 $-3 = -3 \checkmark$

\therefore Yes, $(-3, -1)$ is soln.

6)



6) $x = 6$
 undefined

$y = -2$
 $y = 0x - 2$
 $m = 0$ $b = -2$

$(6, -2)$
 x y

$6 = 6 \checkmark$ $-2 = -2 \checkmark$

\therefore Yes, $(6, -2)$ is soln.

Summary

EQ: If you had to teach this method to a friend, how would you describe the process of solving systems by graphing?

① put lines in $y = mx + b$

② $m =$ Graph
 $b =$

③ Find intersection pt

④ ✓ pt in Both Eqns

7.1 Homework

- Packet #1-12
* Show work for checking pt in each eqn.

7.1
• p. 401 #11-19