

Warm Up

Which of the following is a solution to $2x - 3y = 5$?

a) ~~$(1, 0)$~~
 ~~x, y~~

b) $(1, -1)$
 x, y

c) $(-1, 1)$
 x, y

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

$$2 + 3 = 5$$

$$5 = 5 \checkmark$$

yes $(1, -1)$
 is soln.

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

$$-2 - 3 = 5$$

$$-5 \neq 5$$

No
 Not
 Soln.

Are you a solution?

$$2x - 3y = 5$$

$(4, 1)$
 x, y

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

$$8 - 3 = 5$$

$$5 = 5 \checkmark$$

Keyla

$(0, 2)$
 x, y

$$2(0) - 3(2) = 5$$

$(1, 4)$
 x, y

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

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.

7.1 Graphing Linear Systems

Goals: • Estimate the solution of a system of linear equations by graphing

EQ: How do you solve systems by graphing?

Algebra 1.5	
② LAST UNIT/Experience Inequalities	① CURRENT UNIT Systems
③ NEXT UNIT/Experience Exponents	
⑧ Student Activities or Assignments 7.1 7.2 7.3 7.4 7.5 7.6	⑤ UNIT MAP
⑦ UNIT SELF-TEST QUESTIONS 1. How do you solve a system by graphing? 2. How is the substitution method used to solve a system? 3. How do you use linear combinations to solve a system? 4. How can you represent and solve a real world situation with a system of equations? 5. How do you determine the number of solutions a system has? 6. How do you graph a system of linear inequalities and determine the solution area?	⑥ UNIT RELATIONSHIPS Solve Graph Represent Apply

Vocabulary

System of linear equations:

set of 2 or more equations with same variables

SAME { **Solution of a linear system:**
an ordered pair (x, y) that makes all equations True

Point of intersection:

ordered pair (x, y) where lines cross on graph

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 $(\underline{-2}, \underline{-1})$.

CHECK

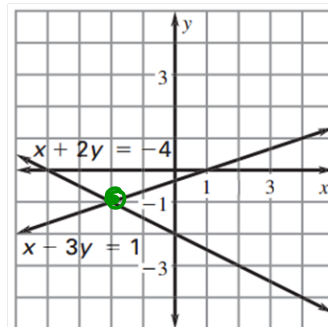
$$\begin{aligned} x + 2y &= -4 \\ -2 + 2(-1) &= -4 \\ -2 - 2 &= -4 \\ -4 &= -4 \end{aligned}$$

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

ANSWER

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

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



SOLVING A LINEAR SYSTEM USING GRAPH-AND-CHECK

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

Step 2 Graph both equations in the same graph
(coordinate plane)

Step 3 Estimate the coordinates of the pt of intersection

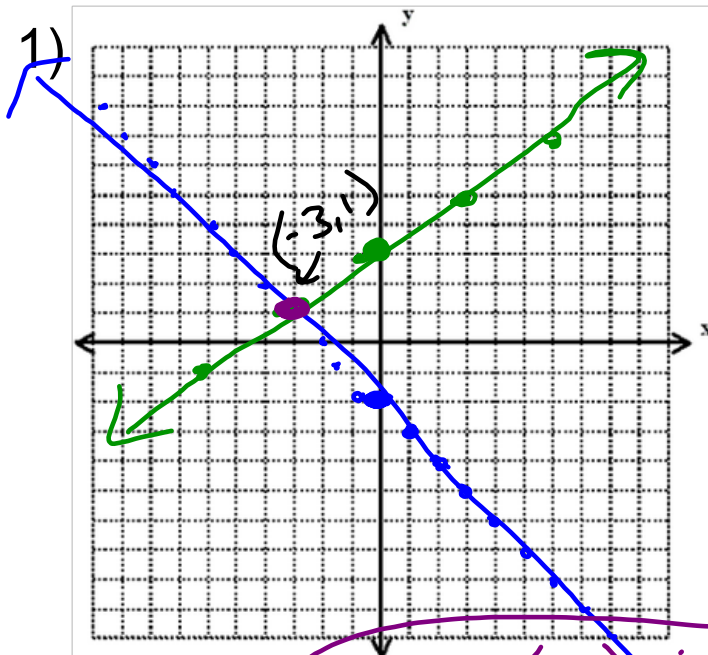
Step 4 Check whether the coordinates give a solution by subbing them into each equation of the original linear system.

$$y = mx + b$$

$$x = \#$$

$$y = \#$$

→ ordered pair (x, y)

Solve each system by graphing.

$$1) \downarrow$$

$$y = -x - 2$$

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

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

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

$$\begin{pmatrix} -3 \\ 1 \end{pmatrix}$$

$$\begin{matrix} x \\ y \end{matrix}$$

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

$$1 = 3 - 2$$

$$1 = 1 \checkmark$$

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

$$1 = -2 + 3$$

$$1 = 1 \checkmark$$

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

2)

$y = x + 6$
 $5 = -1 + 6$

$y = -x + 4$
 $5 = -(-1) + 4$
 $5 = 1 + 4$
 $5 = 5$ ✓

$(-1, 5)$
 x
 y

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

3)

$y = x - 5$
 $m = 1$ $b = -5$

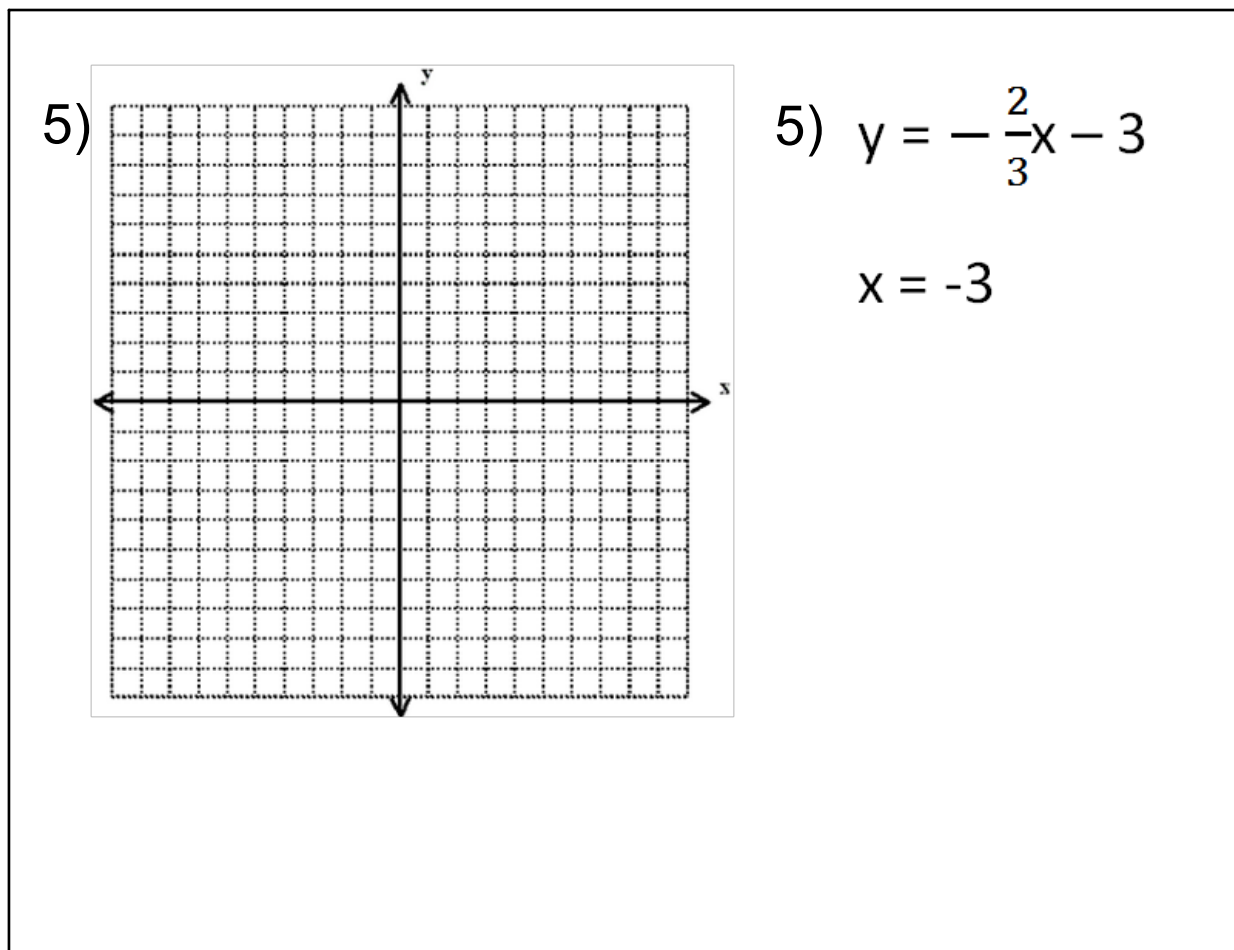
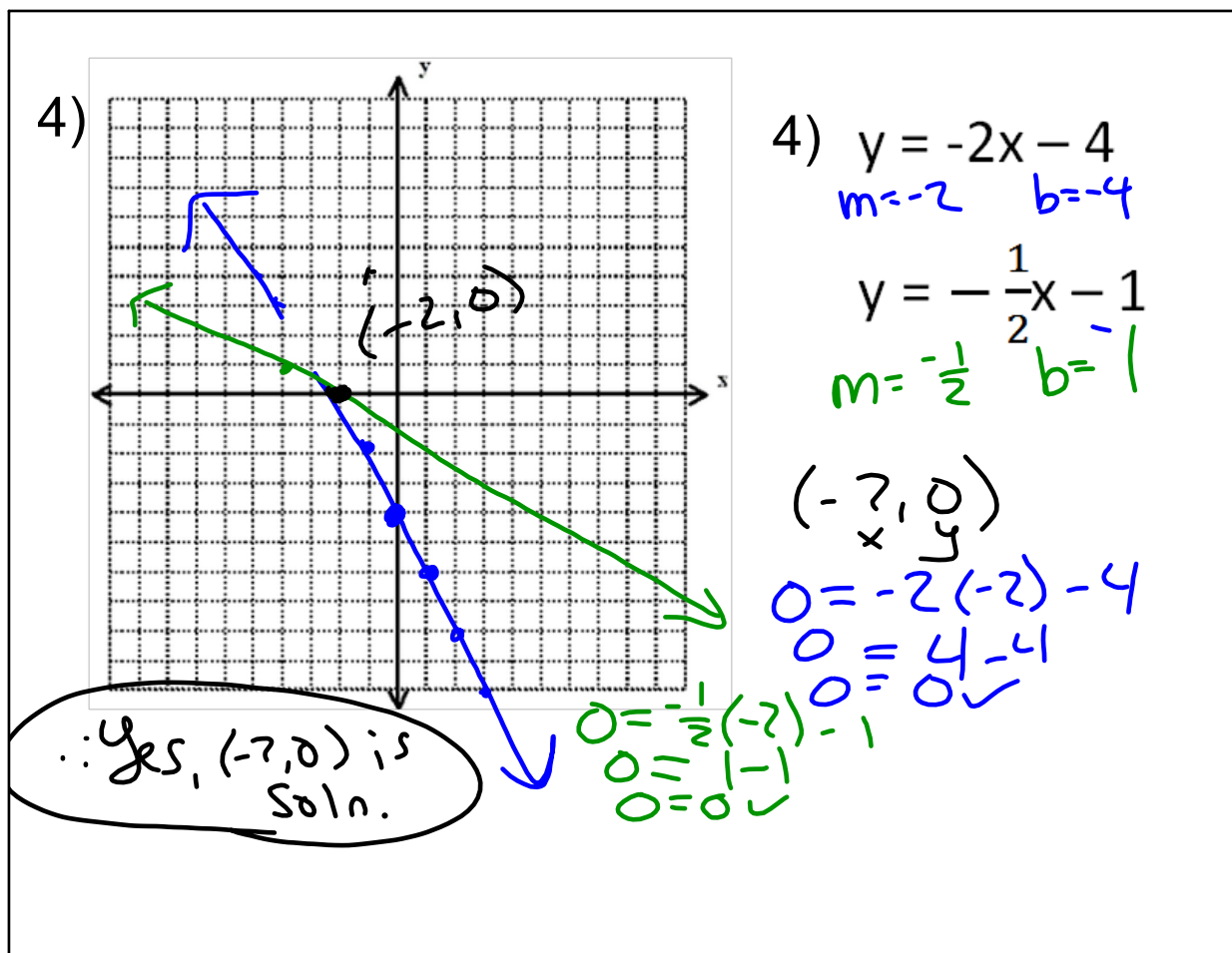
$y = -\frac{2}{3}x$
 $m = -\frac{2}{3}$ $b = 0$

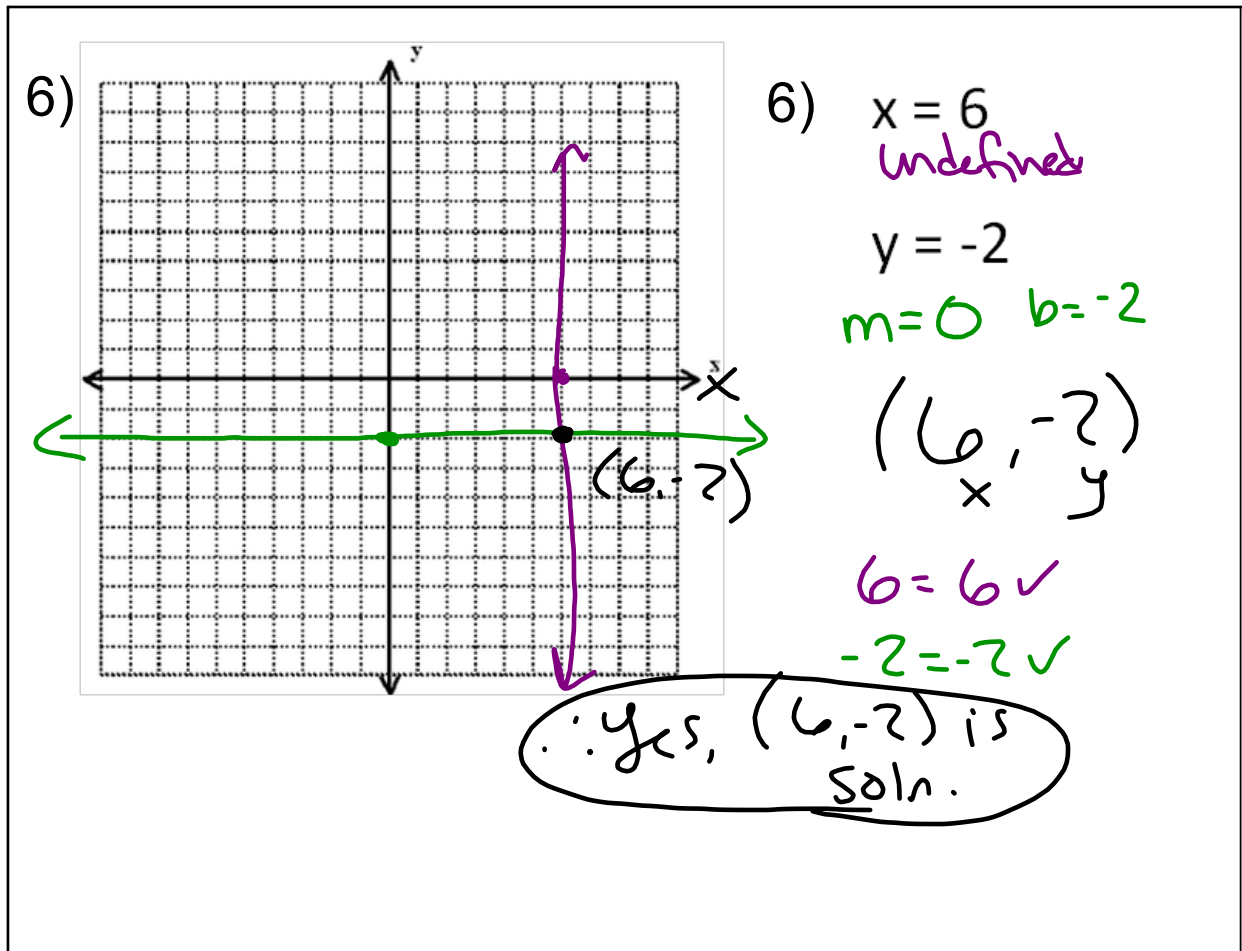
$(3, -2)$
 x
 y

$-2 = 3 - 5$
 $-2 = -2$ ✓

$-2 = -\frac{2}{3}(3)$
 $-2 = -2$ ✓

Yes, $(3, -2)$ is soln.





Summary

EQ: How do you solve systems by graphing?

- 1) $y = mx + b$ $x = \#$
 $y = \#$
- 2) Graph $m =$
 $b =$
- 3) pt of intersection (x, y)
- 4) \checkmark in Both eqns

7.1 Homework

7.1 Packet #1 ~~12~~
 1-6