1.) For your birthday, your father gives you 110 baseball cards. Your friend has th same birthday as you, and was given 20 cards for his birthday. You plan on buying new cards each week. Your friend plans on buying 8 new cards each week.

y = Total cards x = weeks

In how many weeks will the two of you have the same number of baseball cards?

$y = 110 + 5x$ $y = 20 + 8x$

$110 + 5x = 20 + 8x$

$110 = 20 + 3x$

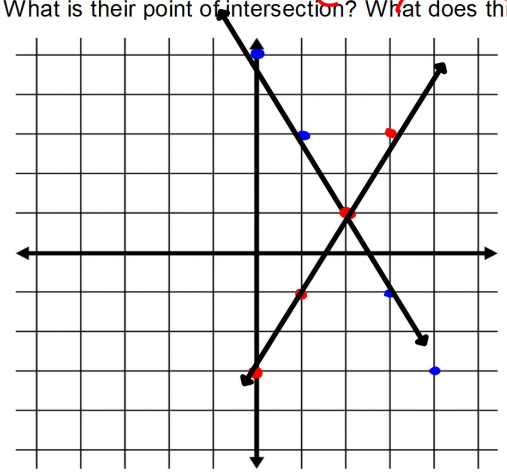
$90 = 3x$

$x = 30$ weeks

2.) Graph these two lines on the same graph below: $y = -2x + 5$ and $y = 2x - 3$

What is their point of intersection? What does this point represent

(2, 1)



Solution to the equations

Chapter 7: System of Linear Equations

Section 1

Objectives:

1.) I will be able to solve system of linear equations by using a graph.

2.) I will be able to analyze special types of system of linear equations.

- Two or more linear equations with the same variables.

Ways to solve a system of linear equations:

1. Graphing:
   a. By hand
   b. Using a graphing calculator
2. Algebra:
   a. Substitution
   b. Elimination

Solution to a system of linear equations:

- The point where the lines intersect
- The #'s for the two variables that make both equations true AT THE SAME TIME

Example 1:

Is each ordered pair a solution to the system of equations?

1.) (2, 1) yes, it is a sol

$4x + 6y = 14$ $4(2)+6(1)\stackrel{?}{=}14$ $14=14$ ✓

$y = 2x - 3$ $1=2(2)-3$ $1=1$ ✓

Since (2, 1) makes both equations true then it IS a solution to this system of equations.

2.) (-3, 7) not a sol

$y = x - 4$ $7=-3-4$

$y = 2x + 1$ $7\neq -7$

False

Is each ordered pair a solution to the system of equations?

3.) (2, 3) is a sol

$y = 2x - 1$ $3=2(2)-1$ ✓

$y = -4x + 11$ $3=-4(2)+11$ ✓

4.) (2, 1) is a sol. yes

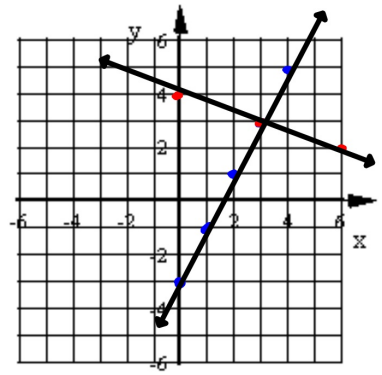
$y = 2x - 3$

$y = x - 1$

Example 2: Solve each system of equations by graphing. Check your solution.

1. $y = 2x - 3$ Sol: (3, 3)

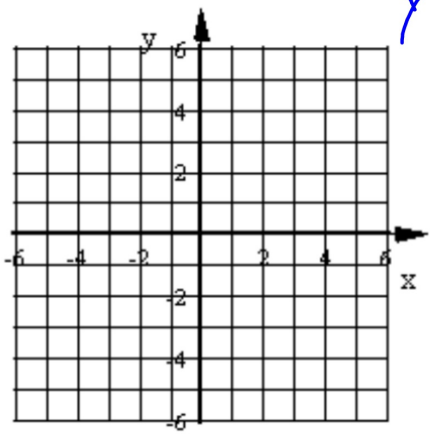
$y = -\frac{1}{3}x + 4$



2. $y = -\frac{3}{2}x - 1$ Sol : (−2, 2)

$6x + 12y = 12 \rightarrow 12y = -6x + 12$

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

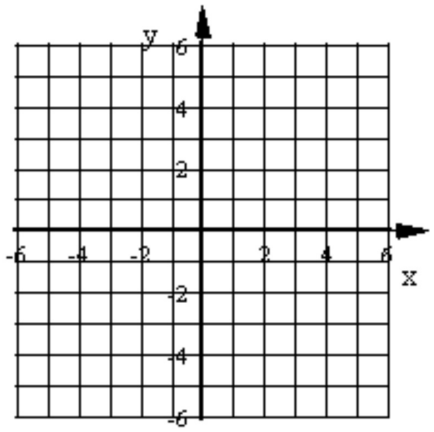


3. $y = -x + 5$

$x = 3$

Sol : (3, 2)

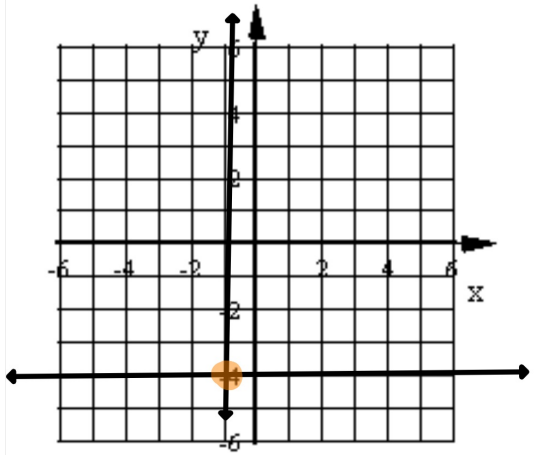
$y = -3 + 5$



4. $y = -4$

$x = -1$

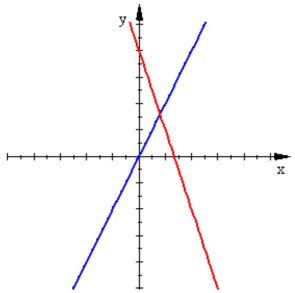
Sol : (−1, −4)



If two lines are graphed together, how many points of intersection can there be?

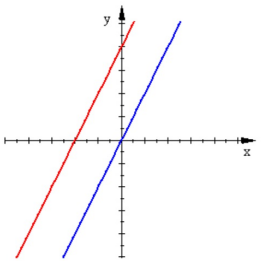
1. One Time

$y = -2x + 8$ and $y = 2x$



2. Never Intersect

$y = 2x$ and $y = 2x + 8$



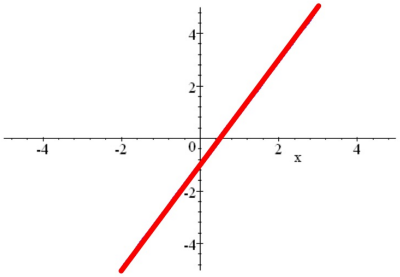
Lines are parallel

3. Infinitely Many Times

$y = 2x - 1$ and $8x - 4y = 4$

$-4y = -8x + 4$

$y = 2x - 1$



They are the same line.

Without graphing how can you tell the number of solutions a system of equations will have?

Find the slope and y-intercept of each line to see if they are parallel, the same line, or will intersect at some point.

Number of solutions to systems of linear equations

# of Solutions	How do you tell without graphing
One Solution:	Lines have a different slope
No solution:	Parallel Lines • same slope • different y-intercept
Many Solutions:	Same lines • same slope • same y-intercept

Example 3: How many solutions does each system of linear equations have?

1. one sol.

$y = 2x - 7$

$4x - 8y = 24$

$-4x \quad -4x$

$-8y = -4x + 24$

$y = 1/2x - 3$

2. || NO sol.

$y = -3x + 1$

$6x + 2y = 8$

$-6x \quad -6x$

$2y = -6x + 8$

$y = -3x + 4$

3. one sol

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

$15x + 12y = 36$

$-15x \quad -15x$

$12y = -15x + 36$

$y = \frac{-5}{4}x + 3$

4. ∞ sols

$y = -6x + 5$

$12x + 2y = 10$

$-12x \quad -12x$

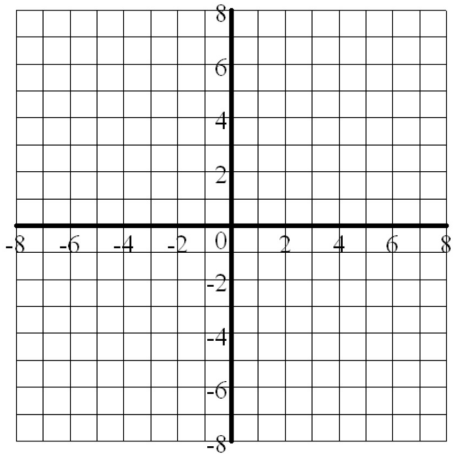
$y = -6x + 5$

HW #1: Pages 343 - 344; Problems 2, 4, 9, 11, 12, 19-21, 38

IXL #1 - U.1 & U.2 due Sunday at 6pm!

Solve this system of equations by graphing:

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



It's not really exact. So you must use a graphing calculator.