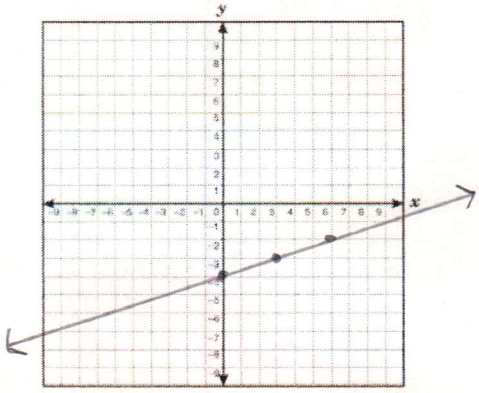
AGS 1 Name: _____ Period: _____ Date: _____

Notes 6.1 – Solving Systems

Warmup – Graph each equation

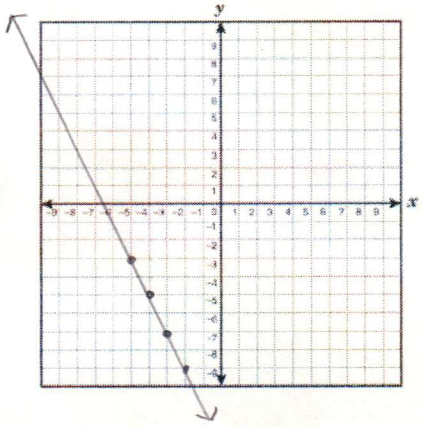
$y = 2x - 7$

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



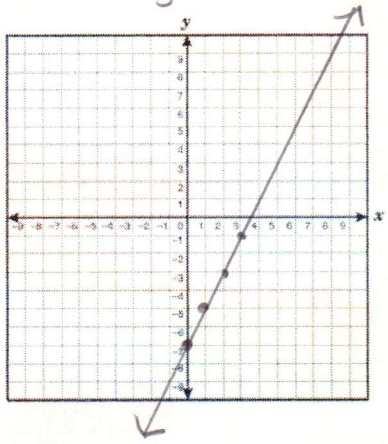
b. $y = -2(x + 4) - 5$

$(-4, -5)$

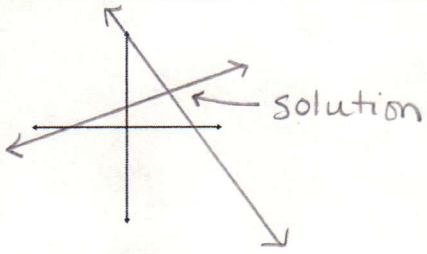
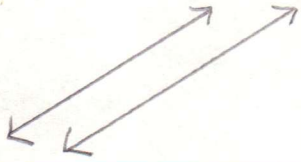


c. $2x - y = 7$

$-y = -2x + 7$



Lesson

Word	Meaning/Notation	Example
System Of Equations	A set of two equations, where the solution is where they cross	
Ordered Pair	The two values that give a location on the coordinate plane (x, y)	(3, -1) means $x = 3$ $y = -1$
Solution	The point where 2 lines cross, given as an ordered pair	
Parallel Lines	Two lines that have the same slope.	

Solving by Graphing

1. $\begin{cases} 3x - y = 3 \\ x + y = 5 \end{cases}$

$3x - y = 3$

$-3x \quad -3x$

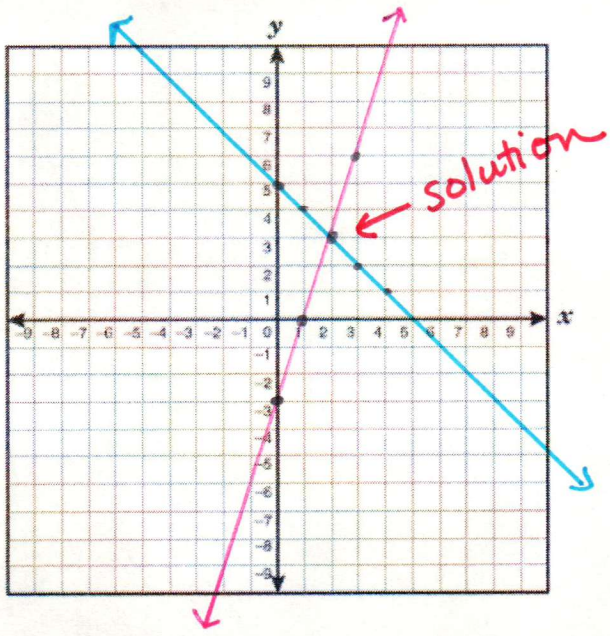
$\frac{-y}{-1} = \frac{-3x}{-1} + \frac{3}{-1}$

$y = 3x - 3$

$x + y = 5$

$-x \quad -x$

$y = -x + 5$



Solution: (2, 3)

2. $\begin{cases} 4x - 2y = 8 \\ y = 2x - 4 \end{cases}$

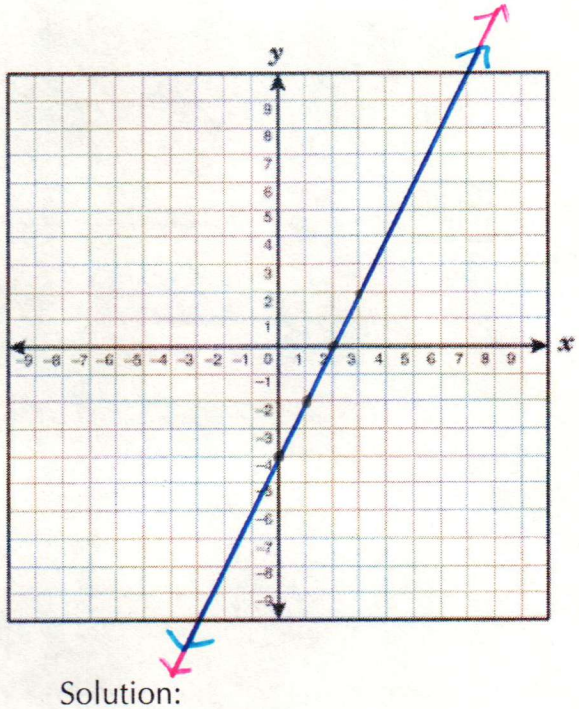
$4x - 2y = 8$

$-4x \quad -4x$

$\frac{-2y}{-2} = \frac{-4x}{-2} + \frac{8}{-2}$

$y = 2x - 4$

Because they graph to the same line, every point on the line is a solution.



Solution:

∞ solutions

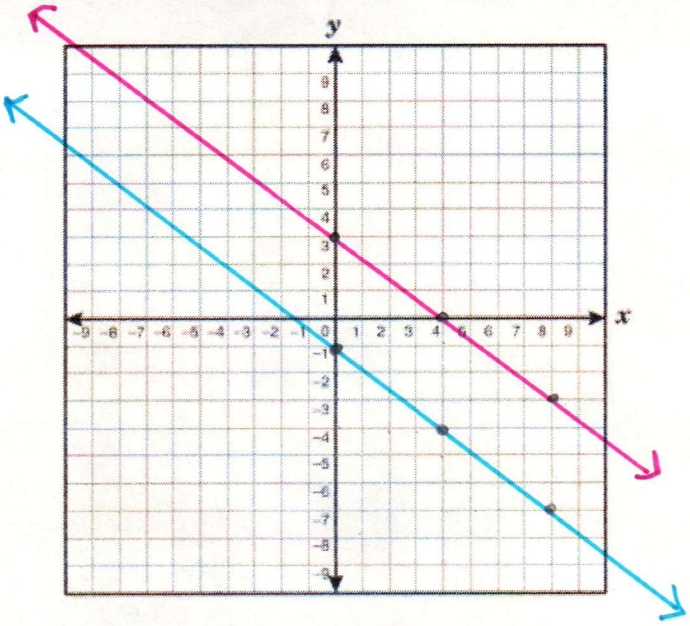
3. $\begin{cases} 3x + 4y = 12 \\ y = -\frac{3}{4}x - 1 \end{cases}$

$3x + 4y = 12$

$-3x \qquad -3x$

$\frac{4y}{4} = \frac{-3}{4}x + \frac{12}{4}$

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



Solution: No Solution

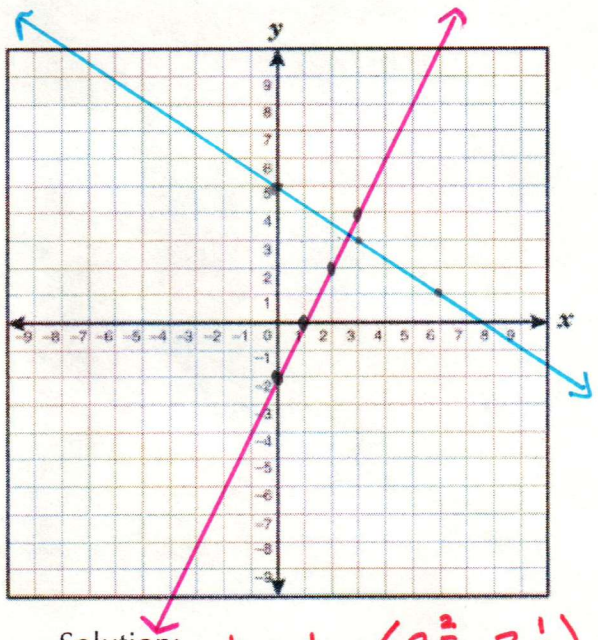
Parallel Lines never cross.

4. $\begin{cases} y = 2(x - 4) + 6 \\ y = -\frac{2}{3}x + 5 \end{cases}$

$y = 2(x-4) + 6$

$y = 2x - 8 + 6$

$y = 2x - 2$



Solution: about $(2\frac{2}{3}, 3\frac{1}{4})$

We cannot get an exact solution by graphing each time. Sometimes we will have to solve another way.

5. Is it a solution?

a $\begin{cases} y = x - 2 \\ y = \frac{1}{2}x + 4 \end{cases}$

b

(12, 10)

a

$10 = 12 - 2$

$10 = 10$

true

b

$10 = \frac{1}{2}(12) + 4$

$10 = 6 + 4$

$10 = 10$

true

Because it is true for both, it is a solution.