Algebra Ch. 11 Linear Systems
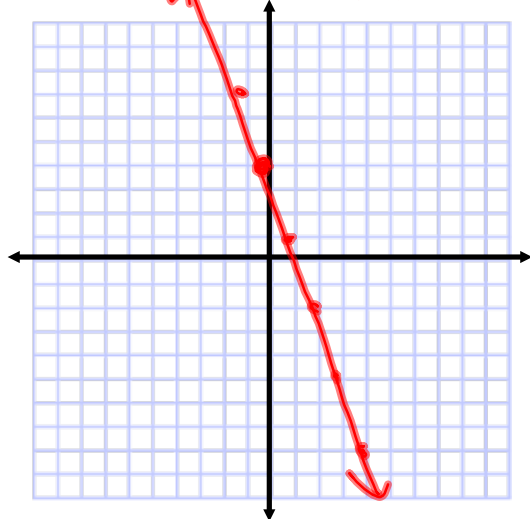
$$y = mx + b$$

yint
start

slope = $\dfrac{\text{rise}}{\text{run}}$

11-1 Warm-Up

start

1. Graph y = -3x + 4

$m = -\dfrac{3}{1} \quad \downarrow 3 \quad \to 1$

2. Graph 2x + y = 5

$y = -2x + 5$

$m = -2 \quad \downarrow 2 \quad \to 1$
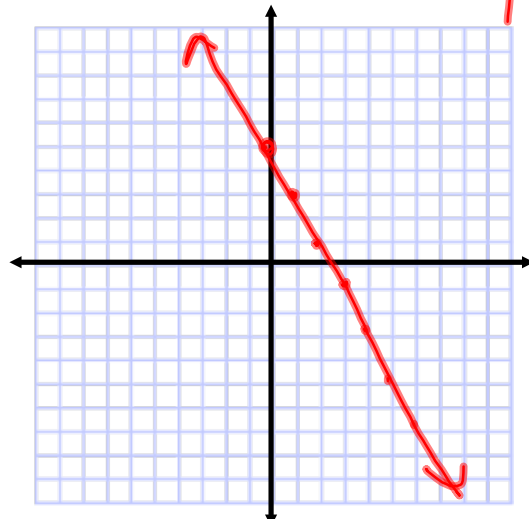
Algebra 11-1 Introduction to Systems

Word	Definition	Example
System of Equations	~more than one equation	And — $\begin{cases} y = 2x+1 \\ y = 5x-8 \end{cases}$
Solution of a System	→where the lines intersect → The point is the solution. <u>Note</u>: Parallel Lines have No Solution.	(x, y) $x =$ $y =$

Finding Solutions by Graphing

1. Graph each equation.

   1. Graph by making a ___Table___ OR

   2. Graph by using ___y=mx+b___ where m = ___Slope___ and b = ___y intercept___.

1. The point of ___intersection___ is the ___Solution___.

  * If the lines do not intersect, then there is ___No Solution___.

Examples
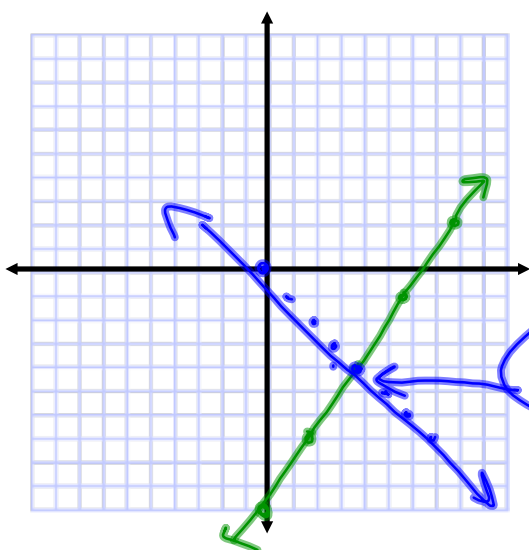
1. Find the solution to the system.   y = 1.5x - 10

   x + y = 0

$1.5 = 1\frac{1}{2} = \frac{3}{2}$ Start

$y = \frac{3}{2}x - 10$ $m = \frac{3}{2} \uparrow$
                                    $\rightarrow$

$y = -1x + 0$

$m = \frac{-1}{1}$ $\downarrow$
                 $\rightarrow$

Solution (4,-4)

Check $x = 4$
      $y = -4$

$y = 1.5x - 10$	$x + y = 0$
$-4 = 1.5(4) - 10$	$4 + -4 = 0$
$-4 = 6 - 10$	$0 = 0$ ✓
$-4 = -4$ ✓	

2. Find the solution to the system. $y = 3x - 1$ start $m = \frac{3}{1}$

$y = 3x + 2$ y-int

$m = \frac{3}{1}$
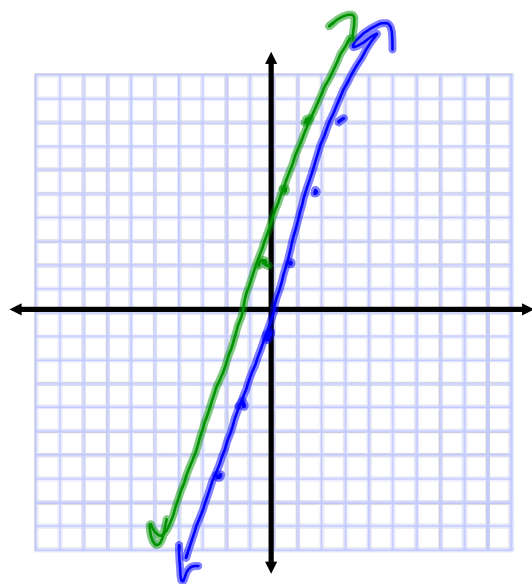
No Solution

*parallel lines