What is a "linear system"? A linear system is two lines considered at the same time.

What does it mean to "solve" a linear system? To find the point of intersection between two lines.

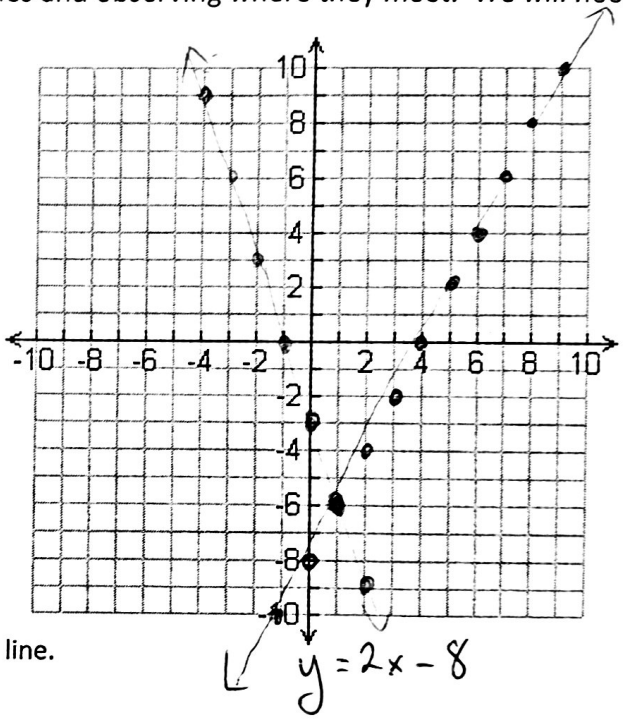
We are going to solve linear systems by graphing the lines and observing where they meet. We will need to use our skill of graphing lines in order to do this.

Let's try solving our first linear system:

1) $y = 2x - 8$ $y = -3x - 3$

m = $2/1$ m = $-3/1$

b = -8 b = -3



Point of Intersection: (1 , -6)

To see if you did it right, you can plug your solution into each line.

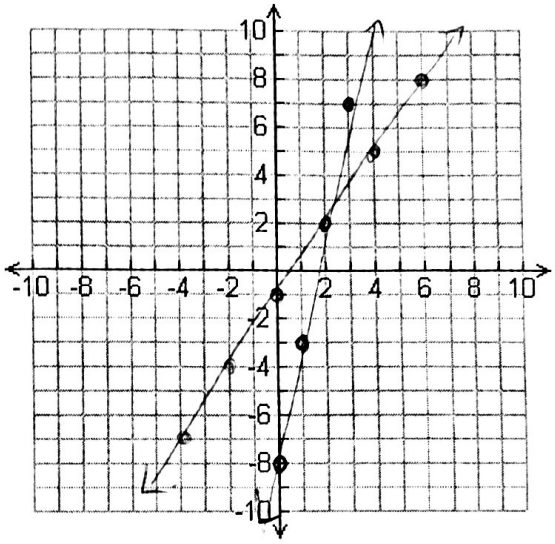
Am I Right??	
Line #1	Line #2
$y = 2x - 8$ $-6 = 2(1) - 8$ $= 2 - 8$ $= -6$ ✓	$y = -3x - 3$ $-6 = -3(1) - 3$ $= -3 - 3$ $= -6$ ✓

You try solving this linear system:

2) $y = 5x - 8$ $\quad$ $y = \frac{3}{2}x - 1$

m = $5/1$ $\quad$ m = $3/2$

b = -8 $\quad$ b = -1



Point of Intersection: (2 , 2)

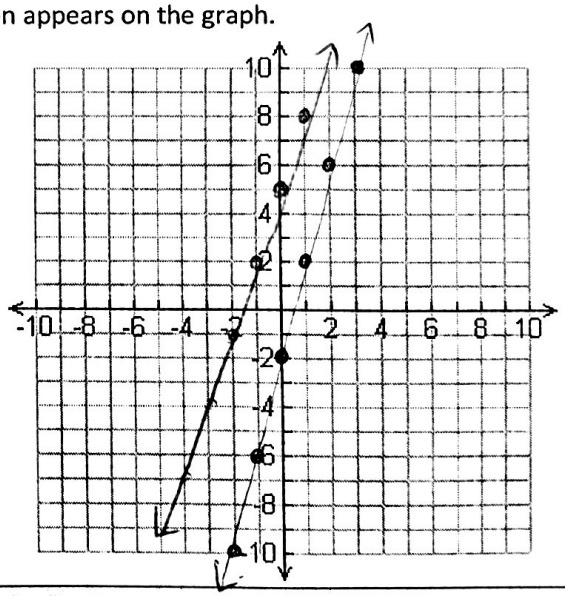
Solving a linear system by graphing is easy... as long as the solution appears on the graph.

Try solving this linear system:

3) $y = 4x - 2$ $\quad$ $y = 3x + 5$

m = ~~2~~ $4/1$ $\quad$ m = $3/1$

b = -2 $\quad$ b = 5



Is the solution on the graph?? In these cases, we need an algebraic method of solving linear systems.

Following along with Mr. Smith as we use algebra to find the solution to this equation.

1) Set the equations equal, and solve for "x"	2) Sub your value for "x" into either equation
$4x - 2 = 3x + 5$ $-3x \quad -3x$ $x - 2 = 5$ $+2 \quad +2$ $\boxed{x = 7}$	$y = 4(7) - 2$ $= 28 - 2$ $= 26$ $y = 3(7) + 5$ $= 21 + 5$ $= 26$ ✓
Point of Intersection = (7 , 26)	