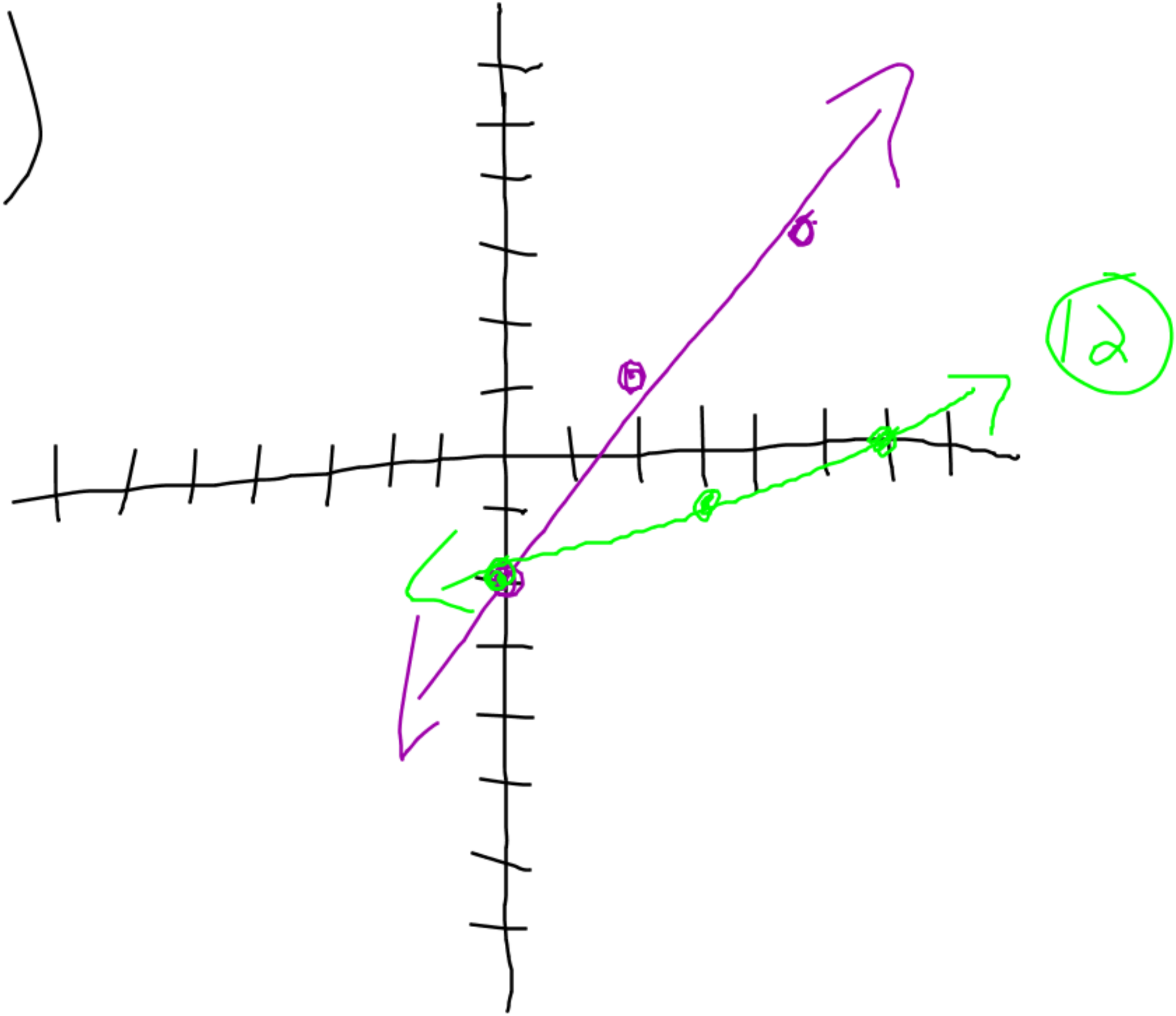
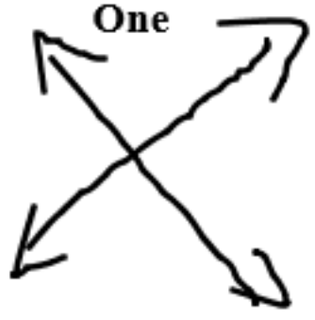
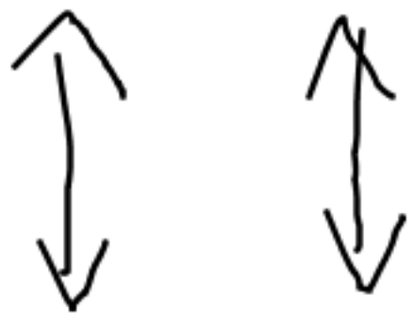
11)



Solving Linear Systems

"Solving" a Linear System means finding the point at which 2 lines intersect. A Linear System can intersect in 3 ways:

One	None	Infinite
		

We will refer to the solution as the Point of Intersection - POI = (x, y)

In this unit, we will learn 3 ways to Solve a Linear System:

1. Solving by **Graphing**
2. Solving by **Substitution**
3. Solving by **Elimination**

Method 1: Solve by Graphing:

Steps:

1. **Graph** the 2 linear systems
2. **State the POI** (Point of Intersection) by stating "The POI is (,)"

Examples

1) $y = -6x - 4$

2) $y - 2x = 4$

1) $m = \frac{-6}{1}$

$b = -4$

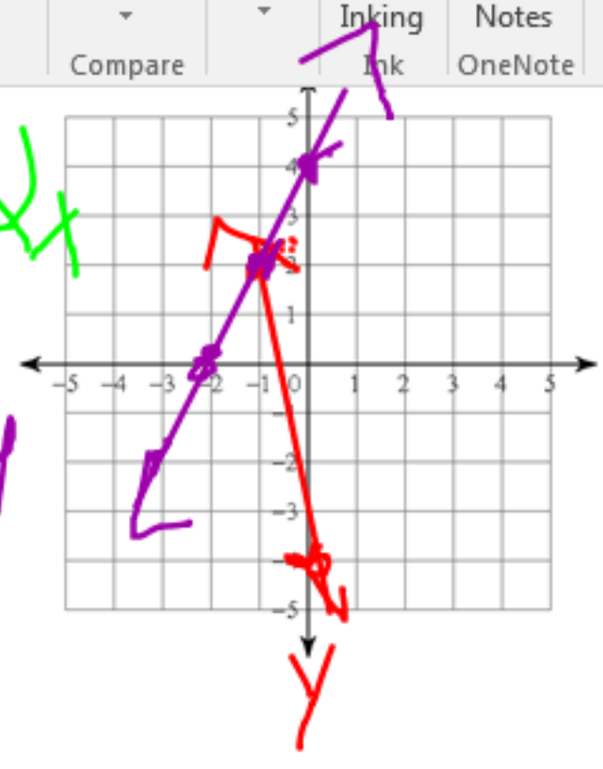
2) $y - 2x = 4$

$+2x \quad +2x$

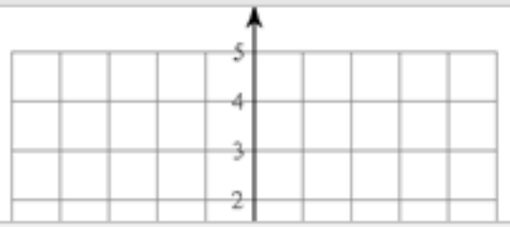
$y = 2x + 4$

$m = \frac{2}{1}$

$b = 4$



∴ POI is $(-1, 2)$



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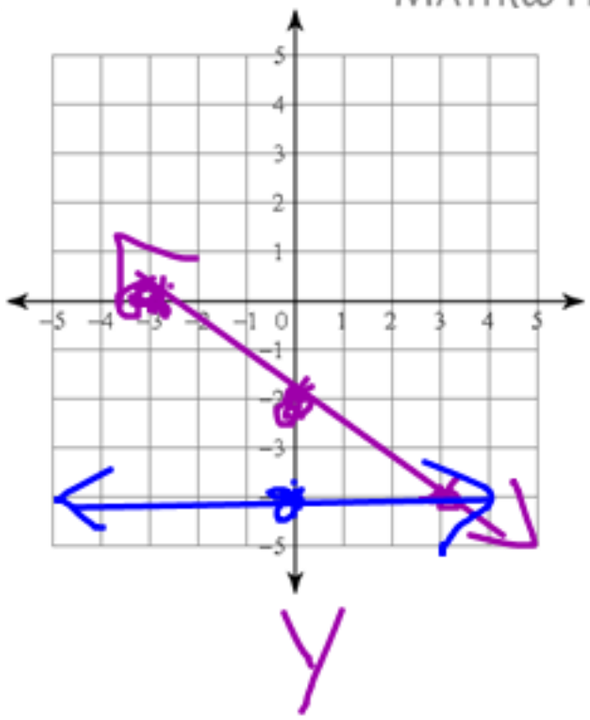
$y=-\frac{2}{3}x-2$

$y=-4$



① $m=\frac{-2}{3}$ $b=-2$

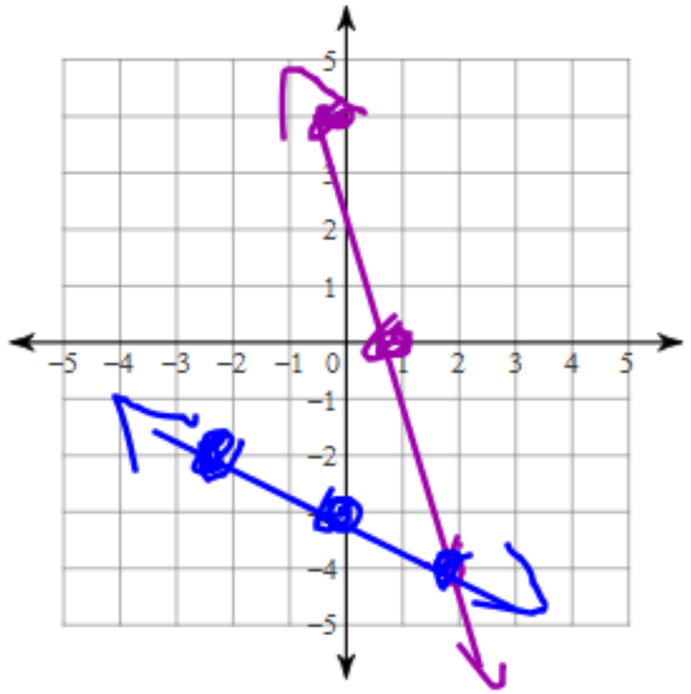
② $m=0$ $b=-4$

∴ POI is $(3,-4)$

Solve each system by graphing.

1) $y = -4x + 4$

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



① $m = -\frac{4}{1}$ $b = 4$

② $m = -\frac{1}{2}$ $b = -3$

∴ POI is $(2, -4)$

12) $-x \quad x - 3y = 6 \quad -x$

$$\frac{-3y}{-3} = \frac{-x}{-3} + \frac{6}{-3}$$

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

$m = \frac{1}{3}$ $\quad b = -2$