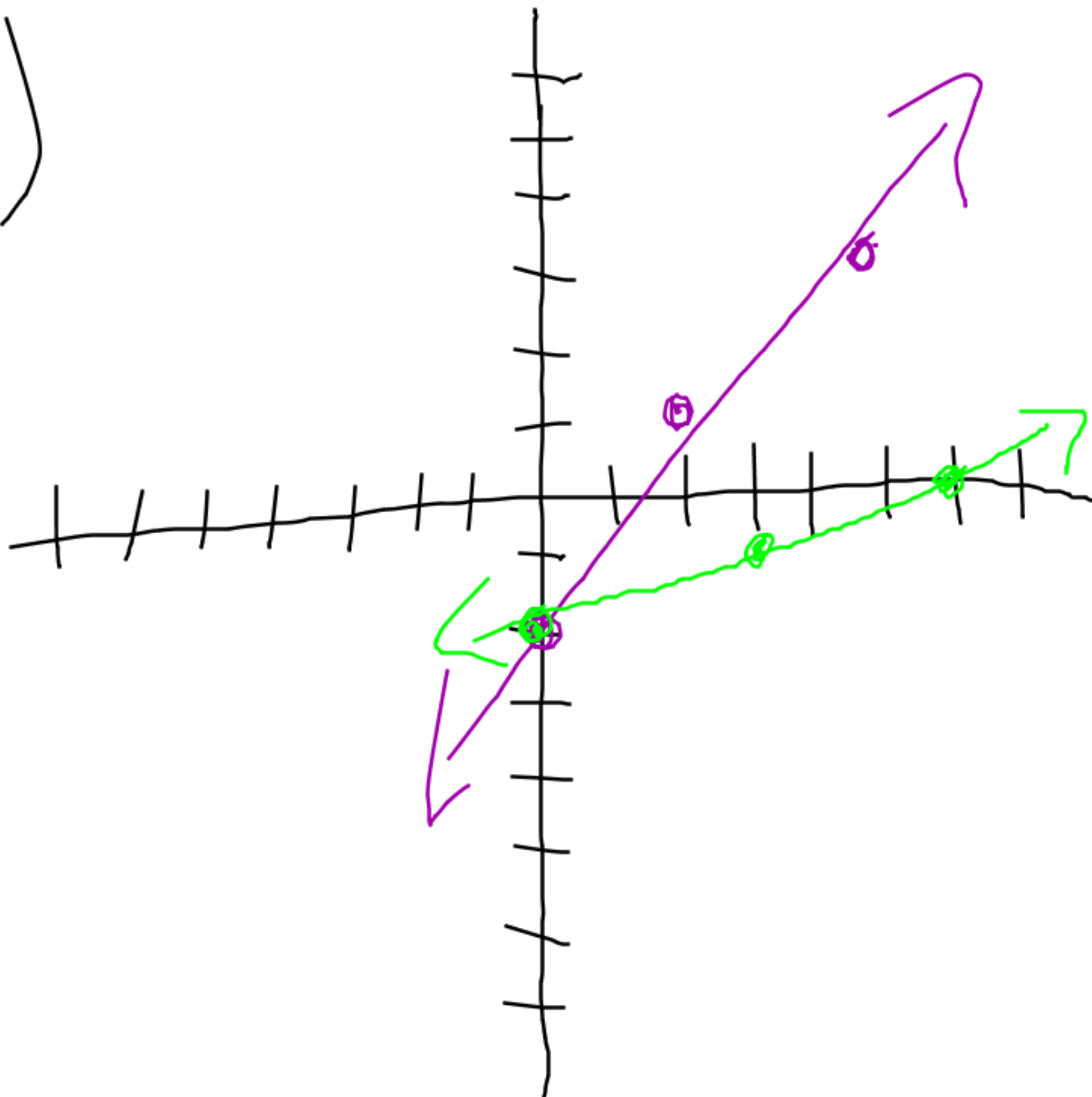


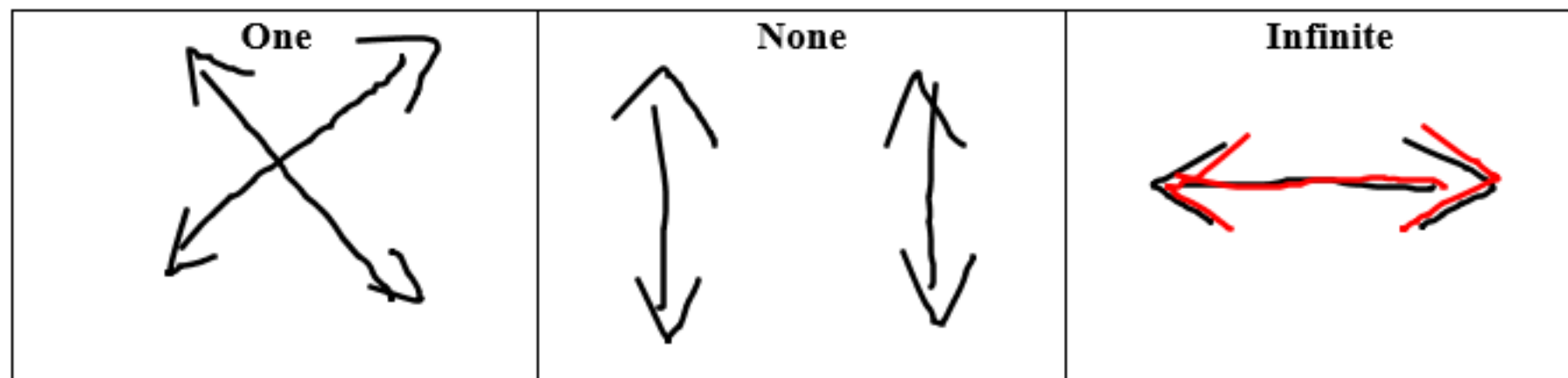
11)



12)

## Solving Linear Systems

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



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:

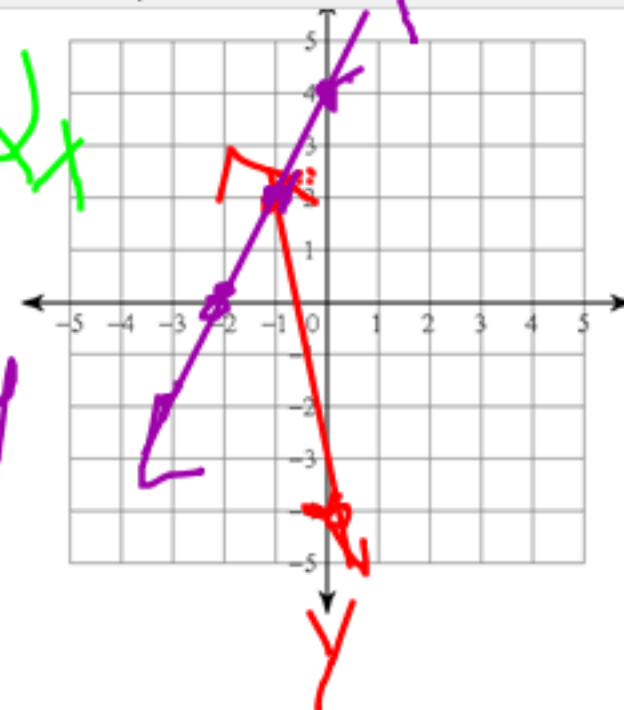
Steps:

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

Examples  
 $y = -6x - 4$   
 $y - 2x = 4$

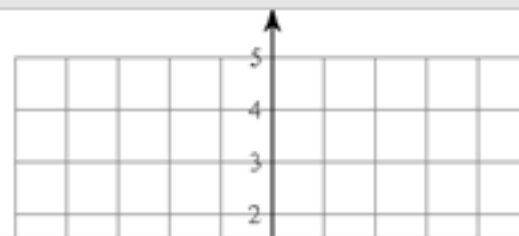
①  $m = -\frac{6}{1}$   
 $b = -4$

②  ~~$y - 2x = 4$~~   
 $y = 2x + 4$   
 $m = \frac{2}{1}$   
 $b = 4$



$\therefore$  POI is  $(-1, 2)$

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①  
②

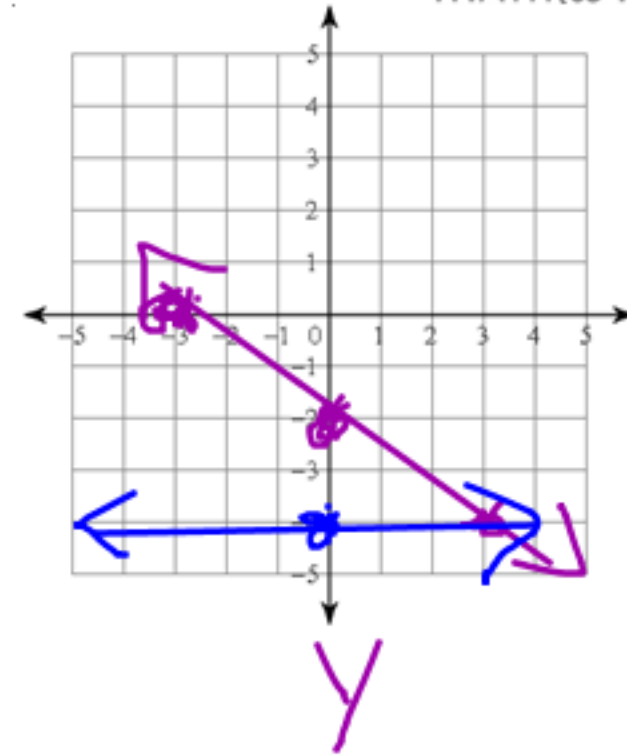
$$y = -\frac{2}{3}x - 2$$
$$y = -4$$

①

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

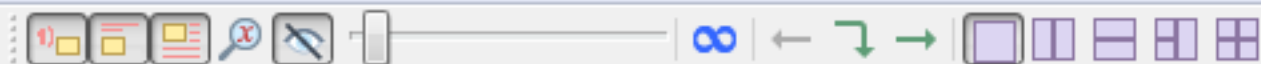
②

$$m = 0 \quad b = -4$$



∴ POI is  
(3, -4)





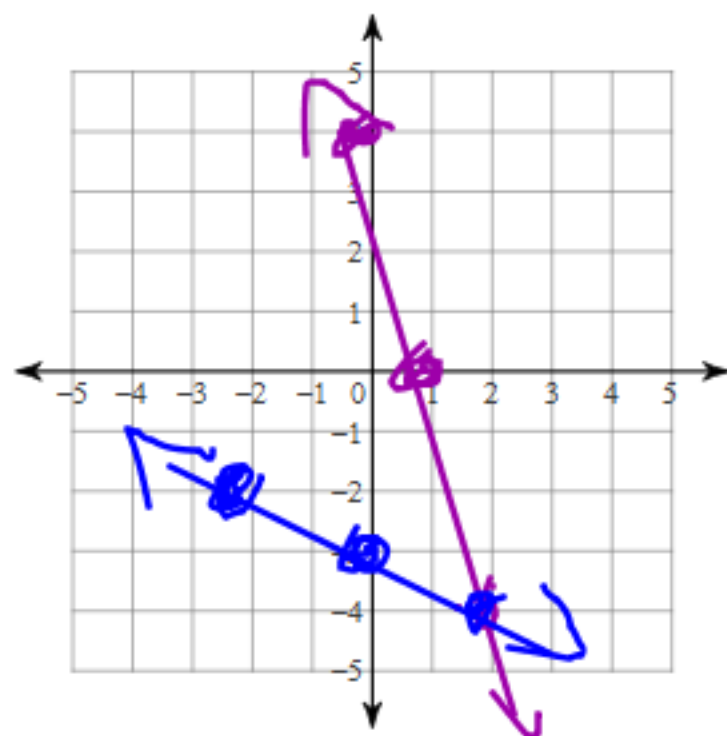
Solve each system by graphing.

①

$$1) y = -4x + 4$$

②

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



$$\textcircled{1} \quad m = -\frac{4}{1} \quad b = 4$$

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

$\therefore$  POI is  $(2, -4)$

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

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

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

$$m = \frac{1}{3}$$

$$b = -2$$