

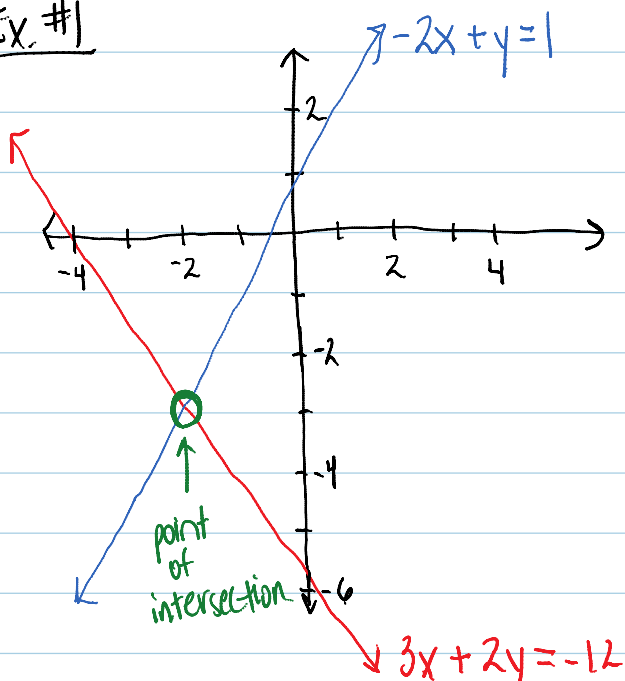
## 7.2 Solving a System of Linear Equations

### Graphically

January-13-14  
10:53 AM

The solution of a linear system can be estimated by graphing both equations.  
 ↳ 2 lines intersect, coordinates  $(x, y)$  are the solution of the linear system.

Ex. #1



$$\begin{aligned} -2x + y &= 1 \\ 3x + 2y &= -12 \end{aligned}$$

the set of points that satisfy BOTH equations lies where the 2 graphs intersect at  $(-2, -3)$

\* to verify that this is correct, substitute  $x = -2$ ,  $y = -3$  in each equation

$$\begin{aligned} -2x + y &= 1 \\ -2(-2) + (-3) &= 1 \\ 4 - 3 &= 1 \\ 1 &= 1 \quad \checkmark \end{aligned}$$

$$\begin{aligned} 3x + 2y &= -12 \\ 3(-2) + 2(-3) &= -12 \\ -6 - 6 &= -12 \\ -12 &= -12 \quad \checkmark \end{aligned}$$

Ex #2

Solve this linear system:

①  $2x + 3y = 3$

②  $x - y = 4$

\* determine the  $x, y$  intercepts of the graph of equations

$$\begin{aligned} \textcircled{1} \quad 2x + 3y &= 3 \\ -2x \quad \quad -2x & \\ \hline 3y &= -2x + 3 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad x - y &= 4 \\ -4 + y \quad + y &= 4 \\ \hline y &= x - 4 \end{aligned}$$

\* write equations in slope-intercept form  
 \* graph

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

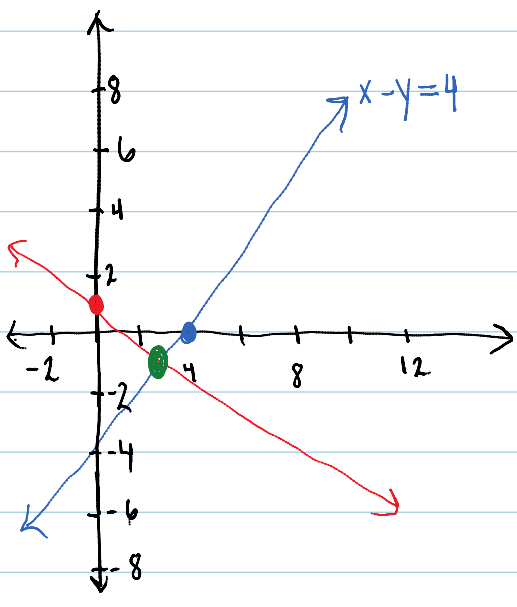
$$y = x - 4$$

graph

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

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

# find pt. of intersection  
# verify



(3, -1) point of intersection

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