

Target 6-1 Graphing Systems of Equations Algebra 1

I can... solve systems of equations 2-20-14 by graphing and determine the type of solution. I can use this to solve real world situations.

Solve Systems of Equations by Graphing  
Graph both equations:

①

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

check:

$$y = 3x - 7$$

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

$$y = 3x - 7$$

solution: (3, 2)

$$2 = -\frac{2}{3}(3) + 4$$

$$2 = 3(3) - 7$$

$$2 = -2 + 4$$

$$2 = 9 - 7$$

$$2 = 2 \checkmark$$

$$2 = 2 \checkmark$$

②

$$y = -3x + 4$$

check:

$$y = 3x - 2$$

$$y = -3x + 4$$

$$y = 3x - 2$$

solution: (1, 1)

$$1 = -3(1) + 4$$

$$1 = 3(1) - 2$$

$$1 = -3 + 4$$

$$1 = 3 - 2$$

$$1 = 1 \checkmark$$

$$1 = 1 \checkmark$$

have to solve for "y" first

③

$$4x + y = 2$$

$$4x + y = 2$$

$$x - y = 3$$

$$x - y = 3$$

$$-4x \quad -4x$$

$$-x \quad -x$$

solution: (1, -2)

$$y = -4x + 2$$

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

check:

$$4x + y = 2$$

$$x - y = 3$$

$$y = x - 3$$

$$4(1) + (-2) = 2$$

$$1 - (-2) = 3$$

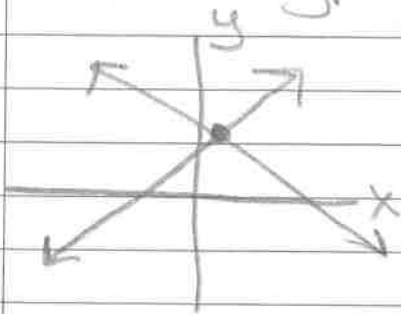
$$4 - 2 = 2$$

$$1 + 2 = 3$$

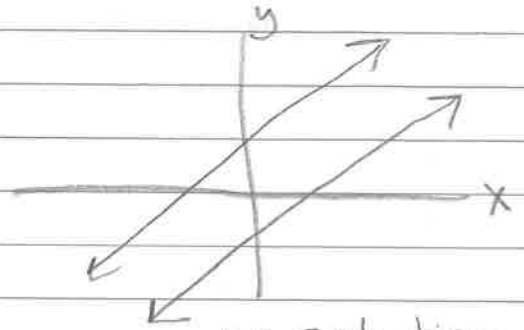
$$2 = 2 \checkmark$$

$$3 = 3 \checkmark$$

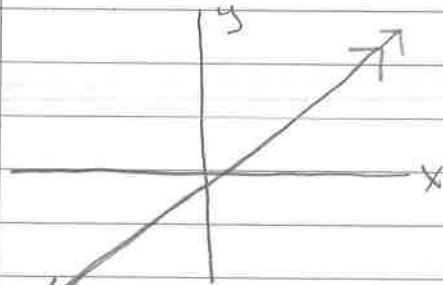
# Types of Solutions



one solution  
(x, y)



no solution  
(if slopes are equal  
then lines are parallel)



infinite solutions  
(same line)

④  $y = -x + 1$   
 $y = -x + 4$   
 no solution (parallel lines)

⑤  $y = 2x + 3$   
 $8x - 4y = -12 \rightarrow$  solve for y:  $8x - 4y = -12$

$$\begin{array}{r} -8x \qquad -8x \\ \hline -4y = -8x - 12 \\ \hline \frac{-4y}{-4} = \frac{-8x}{-4} - \frac{12}{-4} \\ \hline y = 2x + 3 \end{array}$$

infinite solutions

⑥  $y = -5$   
 $5x + 4y = -20 \rightarrow$  solve for y:  $5x + 4y = -20$

$$\begin{array}{r} -5x \qquad -5x \\ \hline 4y = -5x - 20 \\ \hline \frac{4y}{4} = \frac{-5x}{4} - \frac{20}{4} \\ \hline y = -\frac{5}{4}x - 5 \end{array}$$

solution:  
(0, -5)

check your answer on your calculator!

$$y = -5$$

$$y = -\frac{5}{4}x - 5$$

Press  $y=$  button top left of calculator

Plug in given equations. Must be solved for  $y$

Press  $\text{Graph}$ . Top right of calculator ( $\text{Zoom}$   $\text{Z}$ )

Press  $\text{2nd}$  then  $\text{Calc}$

Select intersect or press  $\text{5}$

Put cursor on one line press  $\text{enter}$  (1st curve)

Put cursor on other line press  $\text{enter}$  (2nd curve)

Guess?  $\text{enter}$

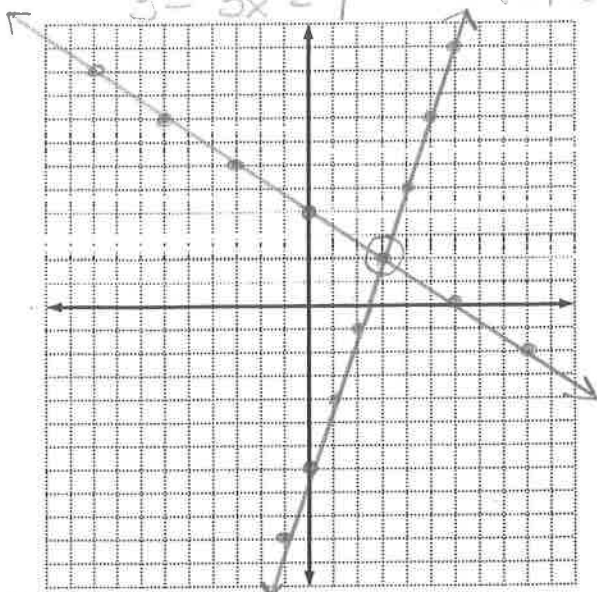
it should give solution

HW: p338 #25, 26, 27-41 odd

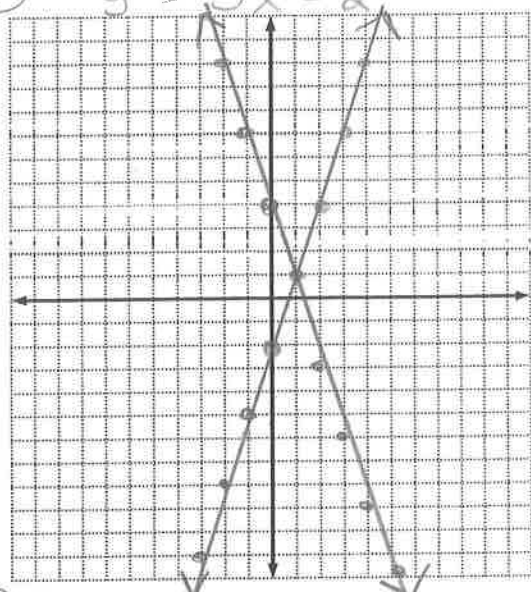
write equations for each  $\Delta$ /Band and Graph



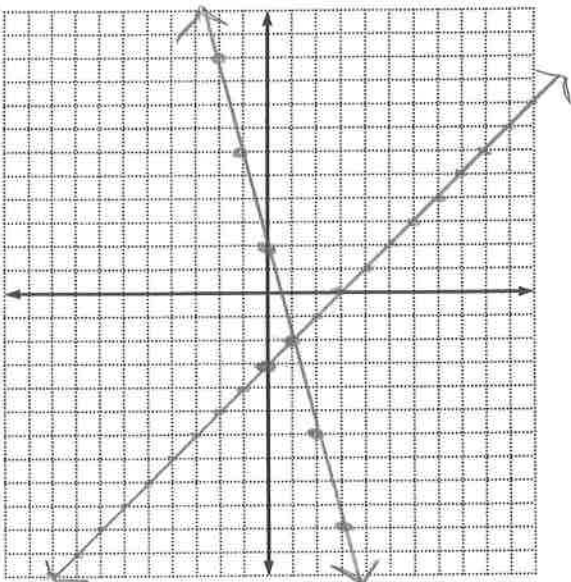
①  $y = -\frac{2}{3}x + 4$  solution: (3, 2)  
 $y = 3x - 7$



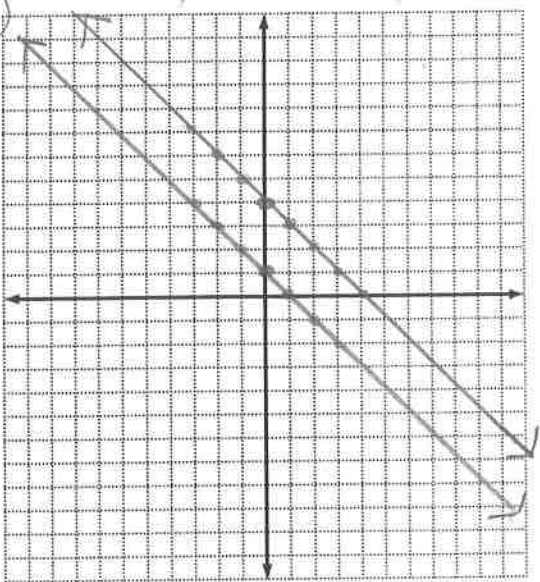
②  $y = -3x + 4$  solution: (1, 1)  
 $y = 3x - 2$



③  $y = -4x + 2$   
 $y = x - 3$   
 solution: (1, -2)



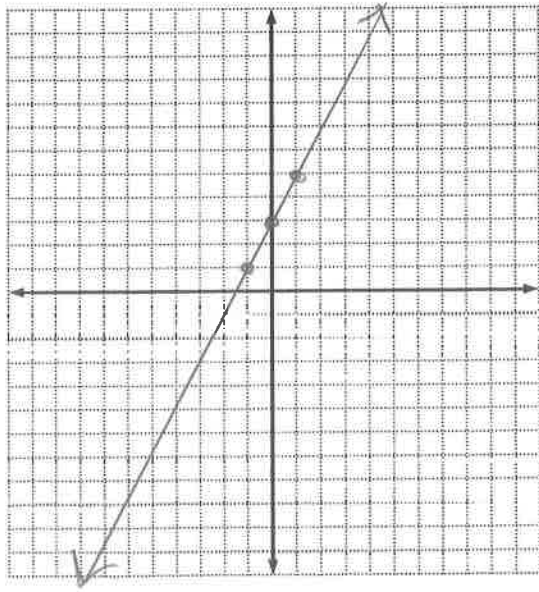
④



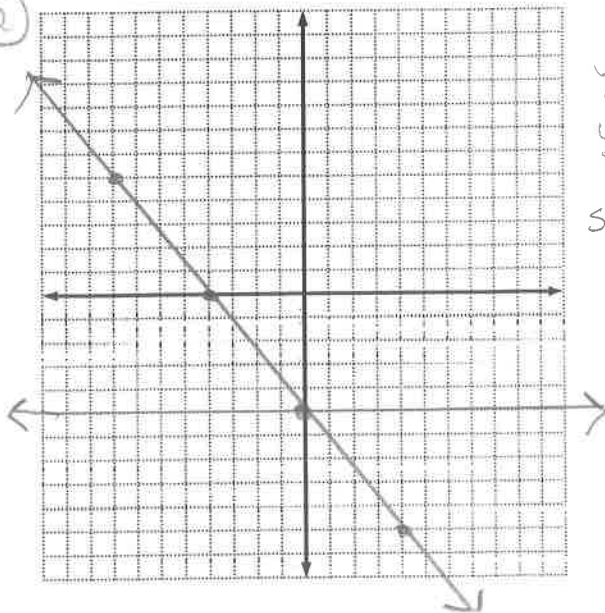
$y = -x + 1$   
 $y = -x + 4$   
 no solution

⑤

$y = 2x + 3$   
 $y = 2x + 3$   
 infinite solutions



⑥



$y = -5$   
 $y = -\frac{5}{4}x - 5$   
 solution: (0, -5)

