Monday, February 10, 2020

Bell Work:

Solve each of the following equations. Please show your work! Hand them in for feedback.

1) $x - 5 = 10$

2) $3x - 6 = 15$

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

4) $\frac{2x - 6}{3} = 10$

5) $-3(x - 1) + 2 = 4(x + 5)$

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1.3 Graphically Solving Linear Systems

Review:

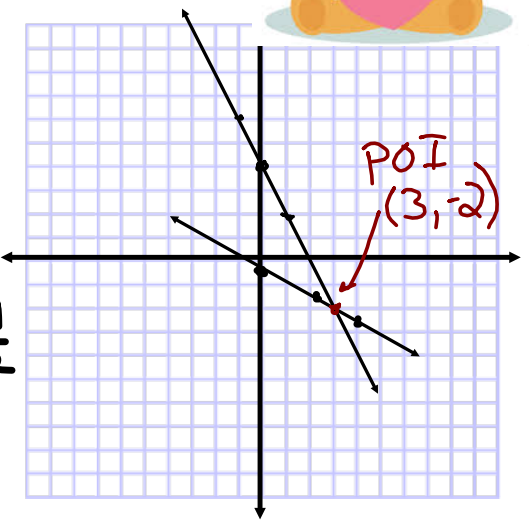
Graph both of the lines given below on the same set of axes. Use graph paper if you don't have the note printed!

① $y = -2x + 4$ → y-int: 4, slope: $\frac{-2}{1}$

② $x + 2y = -1$

$\frac{2y}{2} = \frac{-x}{2} - \frac{1}{2}$ y-int: $-\frac{1}{2}$

$y = -\frac{1}{2}x - \frac{1}{2}$ slope: $-\frac{1}{2}$



New:

Label the point of intersection of the two lines with an ordered pair.

Congratulations, you just solved a linear system of equations by graphing!

Vocabulary

linear equation - an equation that represents a line ($y = mx + b$)

system of linear equations - two or more linear equations used to represent a situation

solving a linear system - finding the point where the lines cross, or the point of intersection (POI)

Steps to Solve by Graphing:

- Graph both lines on the same set of axes using the most appropriate method (table of values, intercepts, y = mx + b)
- Locate the POI. This is the solution of the linear system. It is the only point that both lines share!

Example:

Solve the given linear systems graphically.

1) $y = 2x - 4$ ①
$2x + y = 4$ ②

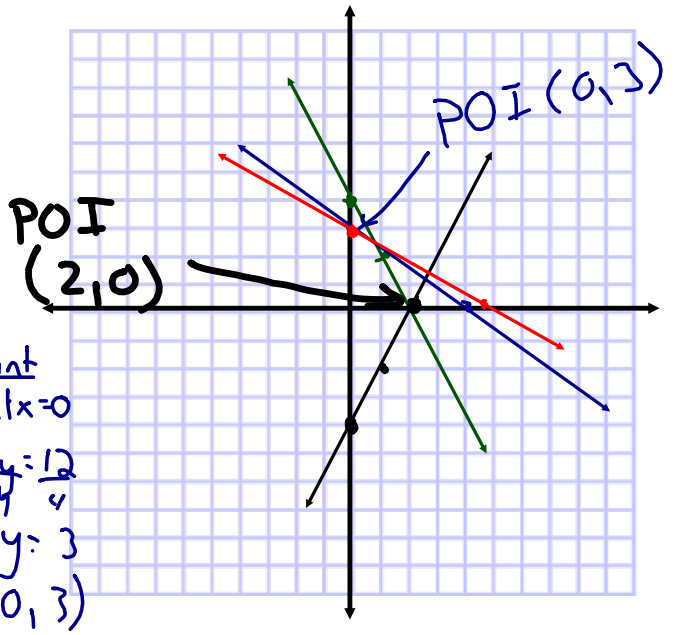
① slope = 2, y-int = -4

② $y = -2x + 4$, slope = -2, y-int = 4

2) $3x + 4y = 12$ ③
$2x + 3y = 9$ ④

③ x-int: Let $y = 0$, $3x = 12$, $\frac{3x}{3} = \frac{12}{3}$, $x = 4$, $(4, 0)$
y-int: Let $x = 0$, $4y = 12$, $\frac{4y}{4} = \frac{12}{4}$, $y = 3$, $(0, 3)$

④ x-int: Let $y = 0$, $2x = 9$, $\frac{2x}{2} = \frac{9}{2}$, $x = 4.5$, $(4.5, 0)$
y-int: Let $x = 0$, $3y = 9$, $\frac{3y}{3} = \frac{9}{3}$, $y = 3$, $(0, 3)$



You need to graph accurately when you are doing these questions!!!
Also, if the POI is not on a gridline, please make a reasonable estimate. You can check your answer by substituting it back in to ***BOTH*** original equations.

Check for #1: (2, 0)

① $y = 2x - 4$
$0 \stackrel{?}{=} 2(2) - 4$
$0 = 4 - 4$ ☺

② $2x + y = 4$
$2(2) + 0 \stackrel{?}{=} 4$
$4 = 4$ ☺

Try #2 on your own!