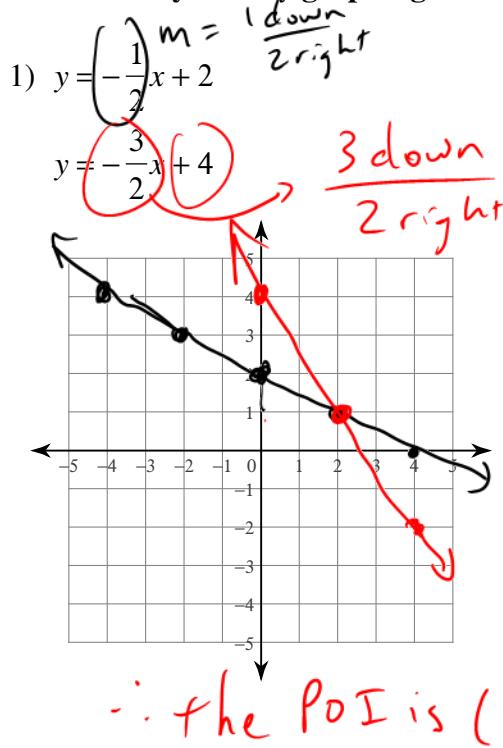


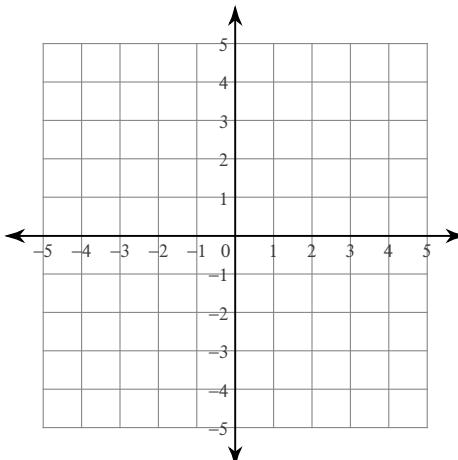
Solving Linear Systems of Equations

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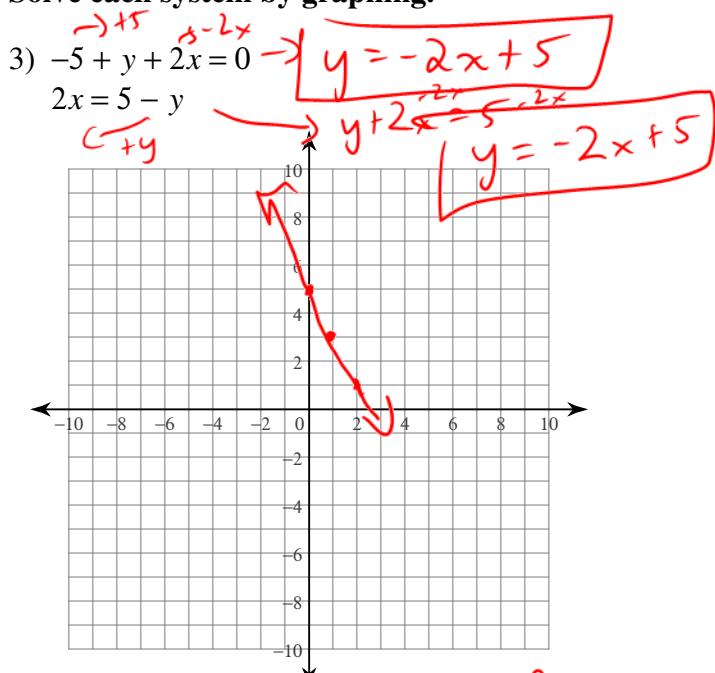
Solve each system by graphing



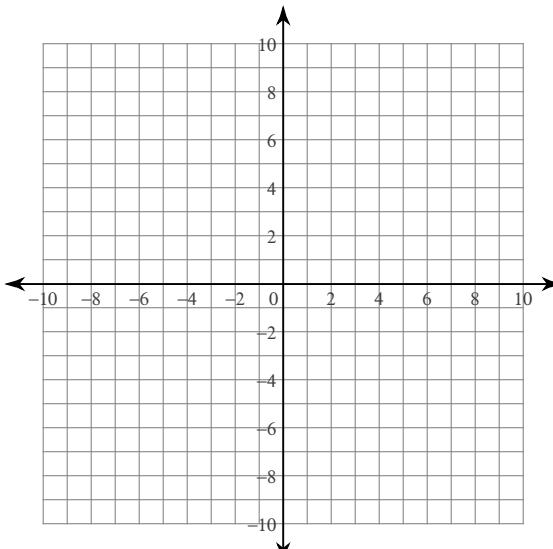
2) $y = \frac{1}{2}x - 2$
 $y = 2x + 4$



Solve each system by graphing.



4) $\frac{1}{2} = -x + \frac{1}{4}y$
 $y + 3 = -x$



Infinite number of solutions

Solve each system.

Elimination

$$5) \begin{array}{l} -4x - 6y = -22 \\ -x + 2y = 12 \end{array} \rightarrow \begin{array}{l} 2y = 12 + x \\ 2y - 12 = x \end{array}$$

sub

$$\begin{aligned} -4(2y - 12) - 6y &= -22 \\ -8y + 48 - 6y &= -22 \\ -14y &= -70 \\ y &= 5 \end{aligned}$$

$$7) \begin{array}{l} -4x + 2y = 12 \\ x - 5y = 6 \end{array} \quad \begin{array}{l} 2(5) - 12 = x \\ 10 - 12 = x \\ -2 = x \end{array}$$

sub

∴ The POI is $(-2, 5)$

$$6) \begin{array}{l} -4x - 14y = 4 \\ 2x + 7y = -4 \end{array} \times 2$$

sub

$$8) \begin{array}{l} x + y = -1 \\ 6x + 4y = -4 \end{array}$$

Elim'

$$9) \begin{array}{l} 5x = 5y + 25 \\ 4x - 2y = 18 \end{array} \rightarrow \begin{array}{l} [5x - 5y = 25] \times 4 \\ [4x - 2y = 18] \times 5 \end{array}$$

$$\begin{array}{r} 20x - 20y = 100 \\ -[20x - 10y = 90] \\ \hline 0x - 10y = 10 \\ -10y = 10 \\ y = -1 \end{array}$$

$$10) \begin{array}{l} -48 = 36y - 21x \\ 9y - 4x = -22 \end{array}$$

∴

$$11) \begin{array}{l} -x - 8y = 17 \\ 5x + 4y = 23 \end{array} \quad \begin{array}{l} 5x = 5(-1) + 25 \\ 5x = -5 + 25 \\ 5x = 20 \\ x = 4 \end{array}$$

∴ The POI is $(4, -1)$

$$12) \begin{array}{l} 6x - 6y = -24 \\ -5x - 5y = 10 \end{array}$$

Substitution:- Best when it is easy to isolate a variable.

Elimination :- When substitution isn't easy

Answers to Solving Linear Systems of Equations (ID: 1)

- | | | |
|---------------|---------------|---------------------------------|
| 1) $(2, 1)$ | 2) $(-4, -4)$ | 3) Infinite number of solutions |
| 4) $(-1, -2)$ | 5) $(-2, 5)$ | 6) No solution |
| 8) $(0, -1)$ | 9) $(4, -1)$ | 10) $(-8, -6)$ |
| 12) $(-3, 1)$ | | 11) $(7, -3)$ |