

October 12, 2011

Solve using the substitution method

$$\begin{cases} 5x + 3y = 1 \\ -4x + y = 6 \end{cases}$$

$$y = 4x + 6$$

$$5x + 3(4x + 6) = 1$$

$$5x + 12x + 18 = 1$$

$$17x + 18 = 1$$

$$17x = -17$$

$$x = -1$$

$$y = 4(-1) + 6$$

$$y = -4 + 6$$

$$y = 2$$

6 pts  
total

$(-1, 2)$

Warm-Up:

Solve using the linear combination method

$$\begin{cases} 5x + 3y = -1 \\ -4x + 2y = 3 \end{cases} \begin{matrix} \times 2 \\ \times 3 \end{matrix}$$

$$10x + 6y = -2$$

$$12x - 6y = 9$$

$$\begin{array}{r} 10x + 6y = -2 \\ -12x + 6y = 9 \\ \hline 22x = -11 \\ \frac{22x}{22} = \frac{-11}{22} \end{array}$$

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

$$-4\left(-\frac{1}{2}\right) + 2y = 3$$

$$2 + 2y = 3$$

$$2y = 1$$

$$y = \frac{1}{2}$$

$\left(-\frac{1}{2}, \frac{1}{2}\right)$

Get out your homework...

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$$20) \begin{cases} (-7x + 5y = 0) \cdot 2 \\ 14x - 8y = 2 \end{cases}$$

$$\begin{array}{r} -14x + 10y = 0 \\ + 14x - 8y = 2 \\ \hline \end{array}$$

$$2y = 2$$

$$y = 1$$

$$-7x + 5(1) = 0$$

$$-7x + 5 = 0$$

$$\frac{-7x}{-7} = \frac{-5}{-7} \quad x = \frac{5}{7}$$

$(\frac{5}{7}, 1)$

$$8) \begin{cases} 3x + 5y = 12 \\ x + 4y = 11 \end{cases}$$

$$x = 11 - 4y$$

$$3(11 - 4y) + 5y = 12$$

$$33 - 12y + 5y = 12$$

$$33 - 7y = 12$$

$$-7y = -21$$

$$y = 3$$

$$x = 11 - 4(3)$$

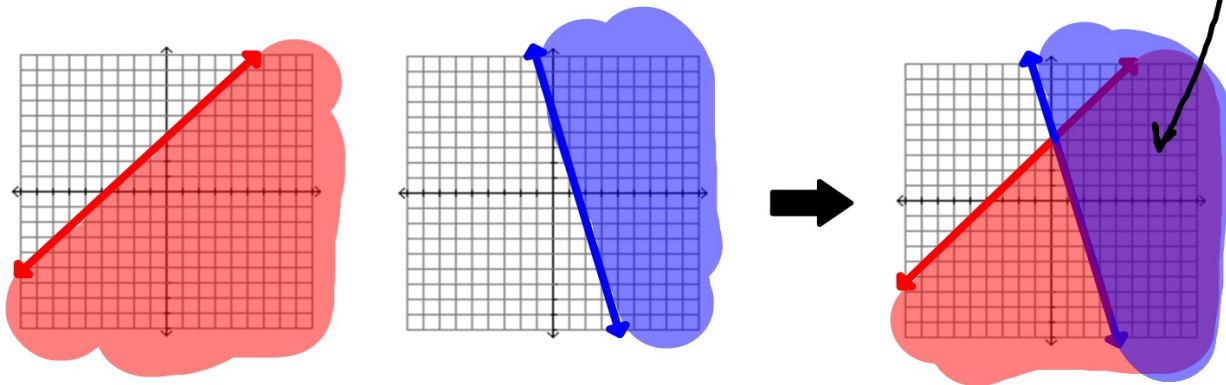
$$= 11 - 12$$

$$= -1$$

$(-1, 3)$

## 10/12 - Solving systems of linear inequalities

If the answer to a system of equations is <sup>the</sup> point where the 2 lines cross, what does the answer to a system of linear inequalities look like?



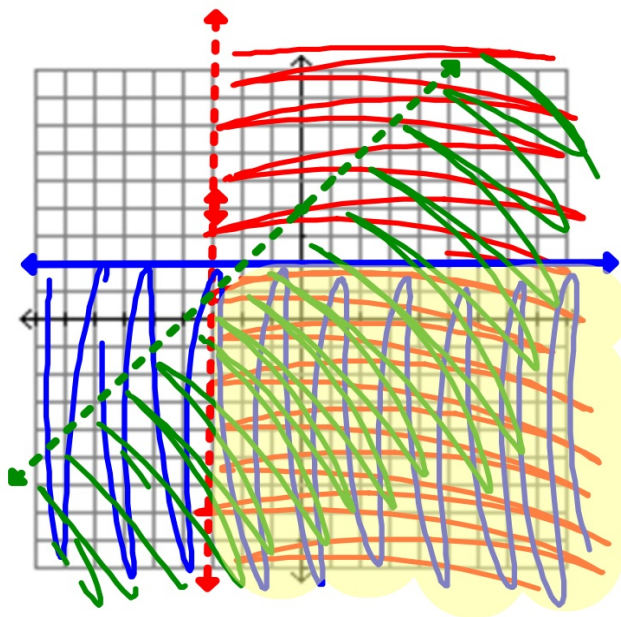
double-shaded part is the answer

Sketch the graph of:

$$\begin{cases} x > -3 \\ y \leq 2 \\ y < x + 4 \end{cases}$$

What a mess!

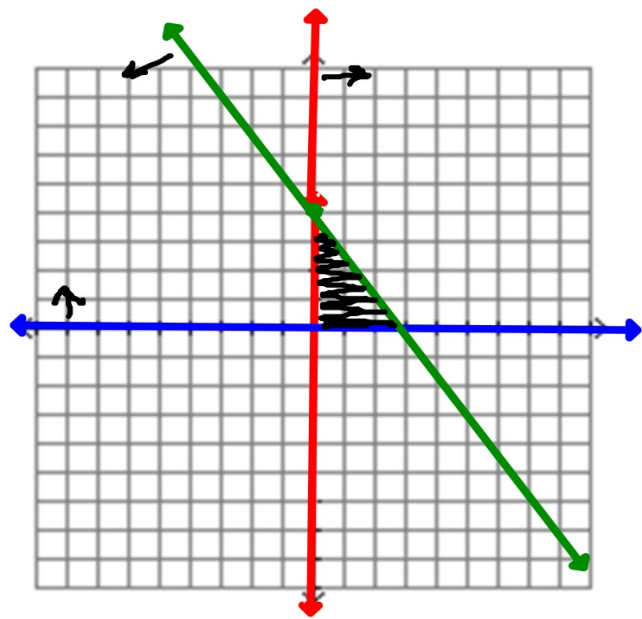
• maybe not the best method ...



Sketch the graph of:

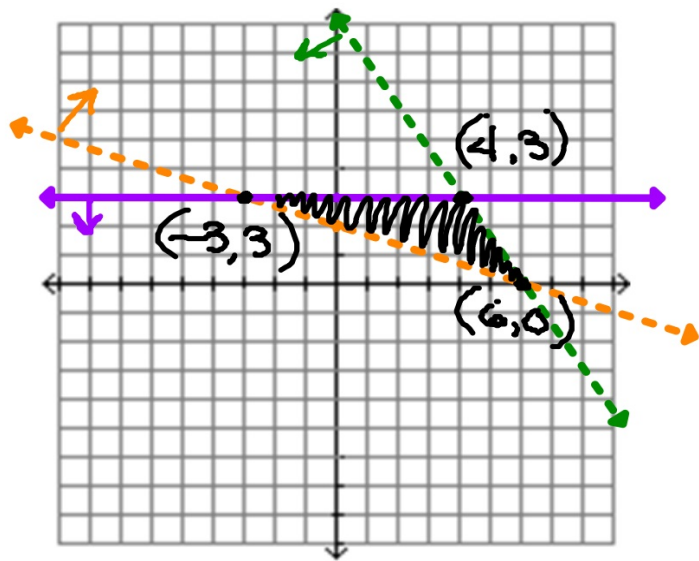
$$\begin{cases} 4x + 3y \leq 12 \\ x \geq 0 \\ y \geq 0 \end{cases}$$

Graph all 3 lines  
THEN shade.



Sketch the graph of:

$$\begin{cases} x + 3y > 6 \\ 3x + 2y < 18 \\ y \leq 3 \end{cases}$$



Homework:

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due tomorrow