

3. Solve the following system of equations by elimination.

a. $-4x + 9y = 9$ (1)
 $3(x - 3y = -6)$ (2)

$$\begin{array}{r} -4x + 9y = 9 \\ 3x - 9y = -18 \\ \hline -x = -9 \\ \hline x = 9 \end{array}$$

$$\begin{array}{r} -4x + 9y = 9 \\ -4(9) + 9y = 9 \\ -36 + 9y = 9 \\ +36 \quad +36 \\ \hline 9y = 45 \\ y = 5 \end{array}$$

Solution (9, 5)

b. $-3(7x - 2y = 18)$ (1)
 $21x - 6y = 3$ (2)

$$\begin{array}{r} -21x + 6y = -54 \\ 21x - 6y = 3 \\ \hline 0 = -51 \text{ Never true} \end{array}$$

The system has no solution (parallel lines)

5. Solve the following system of inequalities by graphing. Clearly indicate the region of your solution.

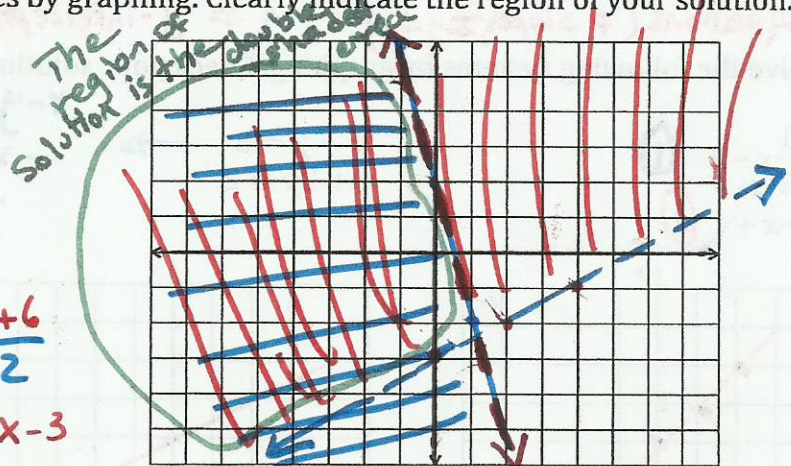
$4x + y < 2$ (1)
 $x - 2y < 6$ (2)

$$\begin{array}{r} 4x + y < 2 \\ -4x \quad -4x \\ \hline y < -4x + 2 \end{array}$$

dash line
Shade below

$$\begin{array}{r} x - 2y < 6 \\ -x \quad -x \\ \hline -2y < -x + 6 \\ \hline y > \frac{1}{2}x - 3 \end{array}$$

Flip the sign when you divide by a negative



6. Solve the following word problem using a system of inequalities. Use the GUESS method.

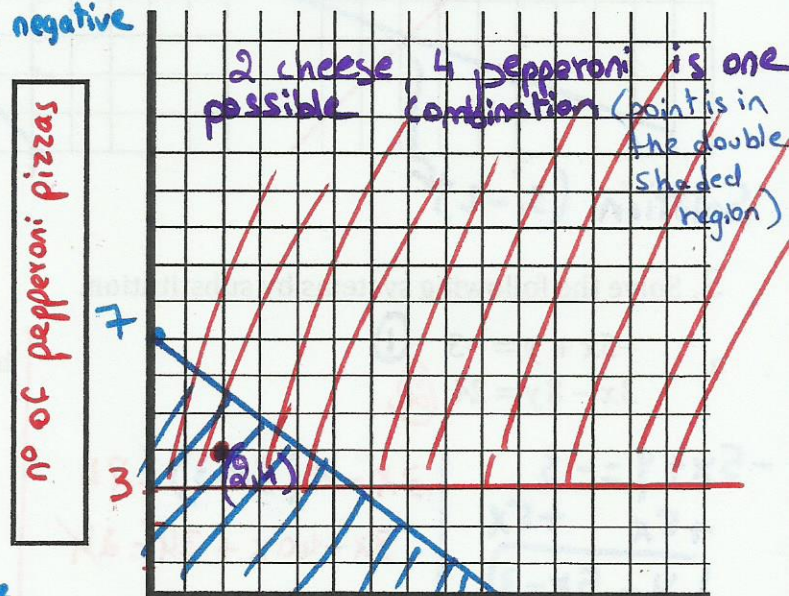
I'm ordering pizza for my friends and we're getting pepperoni and cheese. Cheese pizzas cost \$8 while pepperoni cost \$11. We have \$77 between us and we want to get at least 3 pepperoni pizzas. What is one possible combination of cheese and pepperoni pizzas I could get?

Given Underlined
 Unk: x : nb of cheese pizzas
 y : nb of pepperoni pizzas

E: $8x + 11y \leq 77$
 $y \geq 3$ ← boundary $y = 3$ horizontal line

Sol: $8x + 11y \leq 77$
 $-8x \quad -8x$
 $11y \leq -8x + 77$
 $y \leq -\frac{8}{11}x + 7$

Solid shade below



It is ok if you go off the graph by one!