

1) Simplify: $5(3x - 4) + 6(x - 2)$

$$\begin{array}{r} 15x - 20 + 6x - 12 \\ \hline 21x - 32 \end{array}$$

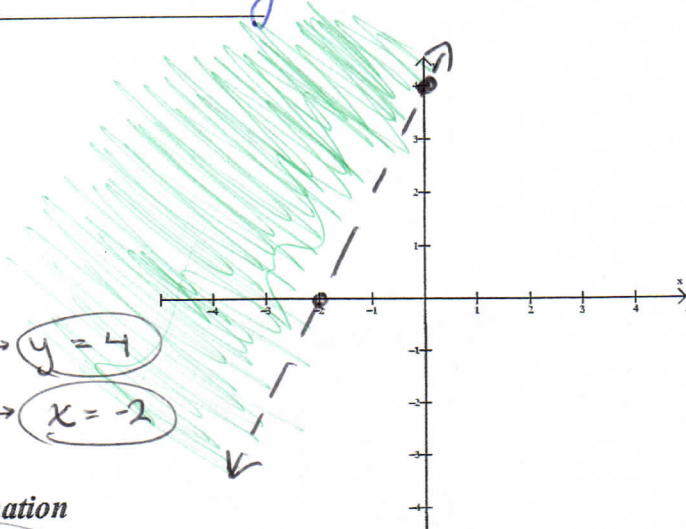
2) Graph the linear inequality

$$4x - 2y > -8$$

x	y
0	4
-2	0

$$4(0) - 2y = -8 \rightarrow -2y = -8 \rightarrow y = 4$$

$$4x - 2(0) = -8 \rightarrow 4x = -8 \rightarrow x = -2$$



3) Solve the system of linear equations using elimination

$$\begin{array}{r} 4x - 4y = 8 \\ -6x + 4y = -24 \\ \hline -2x = -16 \\ \hline x = 8 \end{array}$$

$$\begin{array}{r} 4x - 4y = 8 \\ -2(3x - 2y = 12) \\ \hline -2x = -16 \\ \hline x = 8 \end{array}$$

$$3(8) - 2y = 12$$

$$24 - 2y = 12$$

$$-2y = -12$$

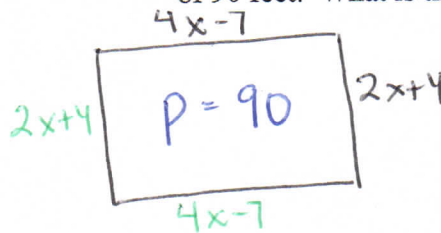
$$y = 6$$

solution: $(8, 6)$

4) Simplify

$$\left(\frac{-2x^3 \cdot y^2}{6x^3 y^5}\right)^3 = \left(\frac{-x^4}{3y^5}\right)^3 = \left(\frac{-x^4}{3y^5}\right)\left(\frac{-x^4}{3y^5}\right)\left(\frac{-x^4}{3y^5}\right) = \frac{-x^{12}}{27y^{15}}$$

5) Perimeter Question: A rectangle garden has a length of $4x - 7$ and a width of $2x + 4$ and a perimeter of 90 feet. What is the length and width of the garden to the nearest foot? (Draw a picture)



$$90 = 4x - 7 + 4x - 7 + 2x + 4 + 2x + 4$$

$$90 = 12x - 6$$

$$\frac{96}{12} = \frac{12x}{12} \rightarrow x = 8$$

$$\begin{array}{l} \text{length} = 4x - 7 \\ 4(8) - 7 \\ \text{width} = 2x + 4 \\ 2(8) + 4 \end{array}$$

length = 25 feet width = 20 feet

Bonus!! Population Growth: The current population of Russia is estimated at 143.5 million. The 10-year growth rate shows the population decreasing by 3%. Using an exponential growth/decay model, what do you predict the population of Russia to be in 40 years? Show all calculations!!!

$$P = 143.5(1 - 0.03)^4$$

$$P = 127.04 \text{ million}$$

In 40 years, the population of Russia should be about 127.04 million people