

DON'T HATE...  
ELIMINATE!!

SOLVE the SYSTEM OF LINEAR EQUATIONS BY ELIMINATION. (Hint: Remember the first step!!)

EX. 1:  $3x + 2y = 8$

1<sup>st</sup>: Get equations into standard form!

$$\begin{array}{r} 2y = 12 - 5x \\ +5x \quad +5x \\ \hline 5x + 2y = 12 \end{array}$$

$$\begin{array}{r} -1(3x + 2y = 8) \Rightarrow -3x - 2y = -8 \\ + \quad 5x + 2y = 12 \\ \hline 2x = 4 \\ \boxed{x = 2} \end{array}$$

\*Plug  $x=2$  back in to equation & solve for  $y$ \*

$$\begin{array}{r} 3x + 2y = 8 \\ 3(2) + 2y = 8 \\ 6 + 2y = 8 \\ 2y = 2 \\ \boxed{y = 1} \end{array}$$

**Answer: (2, 1)**

EX. 2:  $3x = -6y + 12$   
 $-x + 3y = 6$

$$\begin{array}{r} 3x + 6y = 12 \Rightarrow 3x + 6y = 12 \\ 3(-x + 3y = 6) \Rightarrow -3x + 9y = 18 \\ \hline 15y = 30 \\ \boxed{y = 2} \end{array}$$

$$\begin{array}{r} -x + 3y = 6 \\ -x + 3(2) = 6 \\ -x + 6 = 6 \\ -x = 0 \\ \boxed{x = 0} \end{array}$$

**Answer: (0, 2)**

$$\text{EX. 3: } \boxed{2x + 5y = -11}$$

$$5y = 3x - 21$$

$$\begin{array}{r} -3x \\ -3x \end{array}$$

$$\boxed{-3x + 5y = -21}$$

$$-1 (2x + 5y = -11) \Rightarrow -2x - 5y = 11$$

$$-3x + 5y = -21 \Rightarrow \begin{array}{r} -2x - 5y = 11 \\ + \quad -3x + 5y = -21 \\ \hline \end{array}$$

$$-5x = -10$$

$$\boxed{x = 2}$$

$$2x + 5y = -11$$

$$2(2) + 5y = -11$$

$$4 + 5y = -11$$

$$5y = -15$$

$$\boxed{y = -3}$$

Answer:  $(2, -3)$

$$\text{EX. 4: } \begin{array}{l} -3 \\ 2 \end{array} (2a + 6b = 4) \Rightarrow \begin{array}{r} -6a - 18b = -12 \\ + \quad 6a - 14b = 12 \\ \hline \end{array}$$

$$2(3a - 7b = 6) \Rightarrow \begin{array}{r} -6a - 18b = -12 \\ + \quad 6a - 14b = 12 \\ \hline \end{array}$$

$$-32b = 0$$

$$\boxed{b = 0}$$

$$2a + 6b = 4$$

$$2a + 6(0) = 4$$

$$2a = 4$$

$$\boxed{a = 2}$$

Answer:  $(2, 0)$