

Solving Systems of Equations - Elimination NotesOur goal when solving by Elimination:Eliminate/cancel/get rid of one variableIn order to cancel one of the variables, you must have the same *Coefficient* for that variable but opposite signs.**Solving Systems using Elimination:****Steps:****Example:** $5x + y = 9$
 $10x - 7y = -18$

1. Looking for: Same coefficients opposite signs	1. $\begin{matrix} \circ & \circ \end{matrix}$ *only have opposite signs*
2. Multiply one <u>or</u> both equations to eliminate a variable	2. $7[5x + y = 9]$ $35x + 7y = 63$
3. Align our equations $\begin{matrix} w/ & x & y & = & \# \\ & x & y & = & \# \end{matrix}$	3. $\begin{matrix} 35x + 7y = 63 \\ + 10x - 7y = -18 \\ \hline 45x = 45 \end{matrix}$
4. Add up each column	4. $45x = 45$ *Eliminated the y value*
5. Solve for X	5. $\frac{45x}{45} = \frac{45}{45}$ $x = 1$
6. Substitute to find the other variable	6. $10x - 7y = -18$ $10(1) - 7y = -18$ $10 - 7y = -18$
7. 7	7. $\begin{matrix} -10 & & -10 \\ & -7y & = -28 \\ & \underline{-7} & \underline{=7} \end{matrix}$ $y = 4$
8. Write the final answer as an ordered pair	8. $(1, 4)$