

Solving Systems of Equations by Elimination

Step 1: Write one equation under the other – aligning like variables & constants

Step 2: Multiply every term in one or both equations so that adding the 2 equations eliminates one of the variables.

Step 3: Solve for the remaining variable.

Step 4: Substitute that value into either equation to solve for the other variable.

Ex #1:

$$\begin{cases} 3x + 2y = 4 \\ 4x - 2y = -18 \end{cases}$$

Ex #2:

$$\begin{cases} 2x + y = 7 \\ 3x - y = -12 \end{cases}$$

Ex #3:

$$\begin{cases} -2x + y = 5 \\ 10x - 2y = -16 \end{cases}$$

Ex #4:

$$\begin{cases} 8x + y = 27 \\ -3x + 4y = 3 \end{cases}$$

Ex #5:

$$\begin{cases} 3x + 5y = -16 \\ 3y + 2x = -9 \end{cases}$$

Special Systems:

$$\begin{cases} y - 3x = 4 \\ 2y - 6x = 8 \end{cases}$$

$$\begin{cases} 2x - y = 3 \\ 4x - 2y = -12 \end{cases}$$

Word problems!

Ex: Marcus is thinking of two numbers whose sum is 89. Their difference is 11. What are the two numbers?

Ex: To raise money for new uniforms, Hy-Line is selling t-shirts and hats. They spent \$2000 purchasing the merchandise and brought in \$3375 in total sales. How many t-shirts did they sell?

Item	Cost	Sale price
T-shirt	\$6	\$10
hat	\$4	\$7