

Solving Systems of Equations by Substitution

step 1: one of the two equations must have an isolated variable

step 2: substitute its expression into the other equation.

step 3: solve for the remaining variable.

step 4: substitute that value into either equation to solve for the first variable.

Ex #1:

$$\begin{cases} y = 2x \\ 3x + y = 10 \end{cases}$$

Ex #2:

$$\begin{cases} x = -3y \\ 5x + 6y = -18 \end{cases}$$

Ex #3:

$$\begin{cases} -2x + y = -10 \\ 4x - 3y = 24 \end{cases}$$

Ex #4:

$$\begin{cases} y = 23 - x \\ 9x - 8y = 37 \end{cases}$$

Ex: #5:

$$\begin{cases} y = x + 4 \\ y = 16 - 3x \end{cases}$$

Ex #6:

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

Ex: Levi has a job offer in which he will receive \$800 per month plus a commission of 2% of the total price of the cars that he sells. At his current job, he receives \$1200 per month plus a commission of 1.5% of his total sales. How much must he sell per month to make the new job a better deal?