

Solving Systems By Elimination

Solve a system of equations by "eliminating" or getting rid of one of the variables.

Steps:

1. Choose a variable to eliminate
2. Eliminate that variable by adding or subtracting one equation from the other
3. Solve the new equation
4. Substitute your answer to find the other variable

E X A M P L E S

$$2y + 7x = -5 \quad 5y - 7x = 12$$

See any inverses? _____ and _____

Variable to eliminate: _____

Let's line up our equations and add!

$$\begin{array}{r} 2y + 7x = -5 \\ + \quad 5y - 7x = 12 \\ \hline \end{array}$$

Solve!

$$y = \underline{\hspace{2cm}}$$

Substitute into either equation!

$$\begin{aligned} 2y + 7x &= -5 \\ 2(\underline{\hspace{2cm}}) + 7x &= -5 \\ \underline{\hspace{2cm}} + 7x &= -5 \end{aligned}$$

$$7x = \underline{\hspace{2cm}}$$

$$x = \underline{\hspace{2cm}}$$

Solution:

$$4y + 3x = 15 \quad -4y - 4x = -16$$

See any inverses? _____ and _____

Variable to eliminate: _____

Let's line up our equations and add!

$$\begin{array}{r} 4y + 3x = 15 \\ + \quad -4y - 4x = -16 \\ \hline \end{array}$$

Solve!

$$x = \underline{\hspace{2cm}}$$

Substitute into either equation!

$$\begin{aligned} 4y + 3x &= 15 \\ 4y + 3(\underline{\hspace{2cm}}) &= 15 \\ 4y + \underline{\hspace{2cm}} &= 15 \end{aligned}$$

$$4y = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

Solution: