

The background is a solid pink color with faint, overlapping geometric shapes including circles, squares, and rectangles. The text is centered on this background.

Geometry 9/24

Warm Up
AIMS Web 2

0-8 Solving Systems of Linear Equations by Elimination

I can solve a system of linear equations by elimination

Elimination

An algebraic method of solving systems of equations that finds the exact solution.

Elimination is useful when both equations are in standard form. The equations are stacked and added or subtracted. You may have to multiply one equation to get a variable to drop out

$$\begin{array}{l} Ax + By = C \\ 3x + 5y = 10 \end{array}$$

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Elimination is used when graphing does not work well, the equations intersect at noninteger values.

Ex. 1 Solve the system by elimination

$$\begin{array}{r} -3x + y = 7 \\ + 3x + 2y = 2 \\ \hline 3y = 9 \\ \frac{3y}{3} = \frac{9}{3} \\ y = 3 \end{array}$$
$$\begin{array}{r} -3x + y = 7 \\ \quad -3 \quad -3 \\ \hline -3x = 4 \\ \frac{-3x}{-3} = \frac{4}{-3} \\ x = -\frac{4}{3} \end{array}$$
$$\left(-\frac{4}{3}, 3 \right)$$

I can solve a system of linear equations by elimination

Ex. 2 Solve the system by elimination

$$\begin{array}{r} 3x + 4y = -1 \\ -9x - 4y = 13 \\ \hline \end{array}$$

$$\frac{-6x = 12}{-6 \quad -6}$$

$$x = -2$$

$$\left(-2, \frac{5}{4}\right)$$

$$\begin{array}{r} 3 \cdot (-2) + 4y = -1 \\ -6 + 4y = -1 \\ +6 \quad +6 \\ \hline 4y = 5 \quad y = \frac{5}{4} \end{array}$$

I can solve a system of linear equations by elimination

Ex. 3 Solve the system by elimination

$$\begin{array}{r} 4x - 5y = 11 \\ 2(2x + 3y = 11) \end{array} \quad \begin{array}{r} \cancel{4x} - 5y = 11 \\ -\cancel{4x} - 6y = -22 \\ \hline -11y = -11 \\ \hline y = 1 \end{array}$$

$$2x + 3 \cdot 1 = 11$$

$$2x + 3 = 11$$

$$\begin{array}{r} 2x + 3 = 11 \\ -3 \quad -3 \\ \hline 2x = 8 \\ \hline x = 4 \end{array}$$

$$(4, 1)$$

I can solve a system of linear equations by elimination

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$$4x + 2y = 17$$

$$-1(3x + 2y = 12)$$

$$-3x - 2y = -12$$