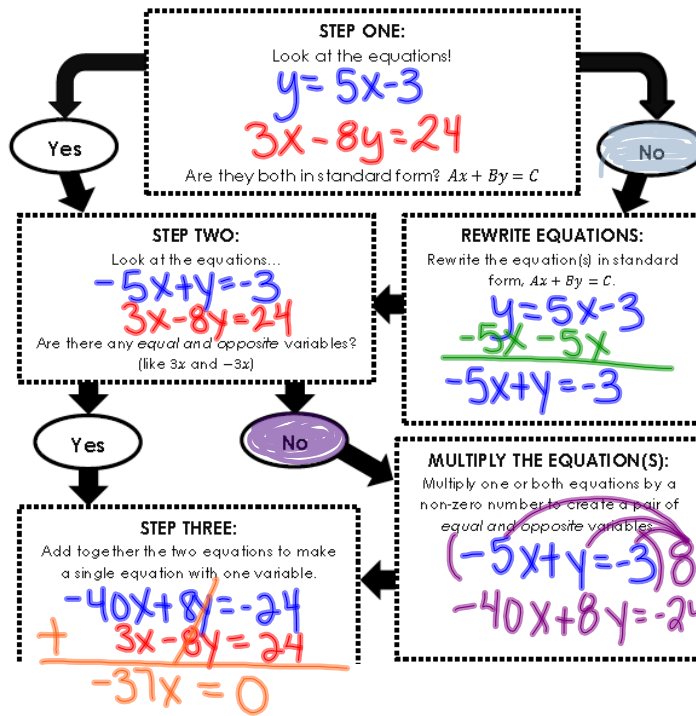


TOC 94 Solving by Elimination

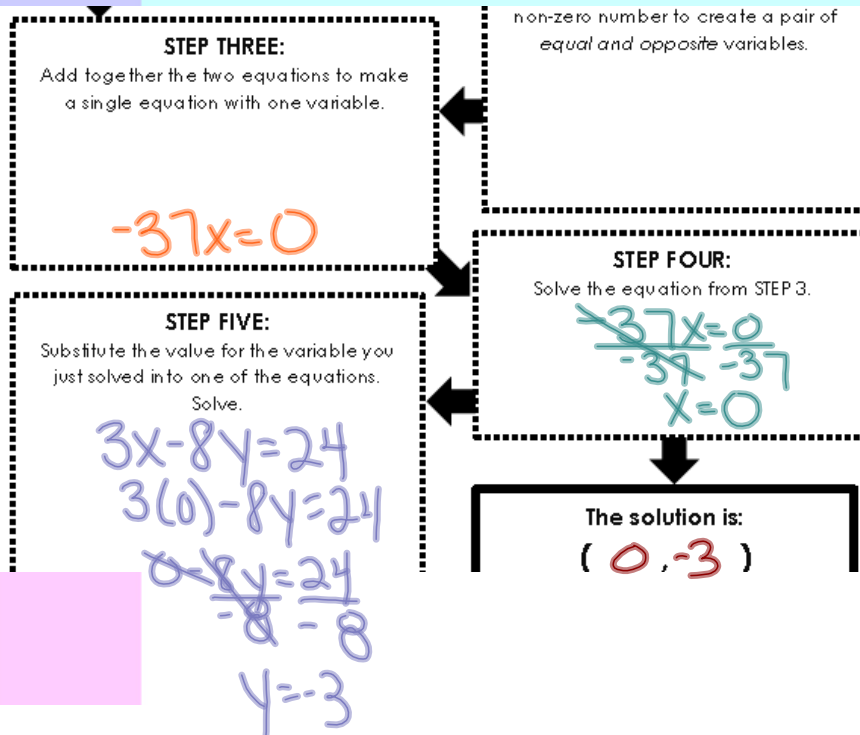
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Solving Systems of Linear Equations by *ELIMINATION*



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TOC 94 Solving by Elimination



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Example 1 (page 95)

Solve by Elimination:

$$\begin{aligned} 2x - 5y &= 26 \\ -2x + 9y &= -42 \end{aligned}$$

$$2x - 5(-4) = 26$$

$$2x + 20 = 26$$

$$2x = 6$$

$$x = 3$$

$$\begin{array}{r} 3 \quad 12 \\ -4x \quad 12 \\ \hline -26 \\ \hline 16 \end{array}$$

$$(3, -4)$$

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Example 2 (page 95)

Solve by Elimination:

$$4x + 5y = 3$$

$$(2x - 3y = 7) \cdot 2$$

$$-4x + 6y = -14$$

$$\begin{array}{r} 4x + 5y = 3 \\ -4x + 6y = -14 \\ \hline 11y = -11 \end{array}$$

$$\frac{11y}{11} = \frac{-11}{11}$$
$$y = -1$$

$$(2, -1)$$

$$4x + 5(-1) = 3$$

$$4x - 5 = 3$$

$$\begin{array}{r} 4x - 5 = 3 \\ +5 \quad +5 \\ \hline 4x = 8 \\ \hline 4 \quad 4 \\ x = 2 \end{array}$$

$$x = 2$$

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Example 3 (page 95)

Solve by Elimination:

$$x = 9 - 2y \quad \text{no solution}$$

$$x + 2y = 13$$

$$(x + 2y = 9) \cdot (-1)$$

$$\begin{array}{r} -x - 2y = -9 \\ x + 2y = 13 \\ \hline 0 = 4 \end{array}$$

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Example 4 (page 95)

Solve by Elimination:

$$3x = 2 - 4y \quad \rightarrow \quad 3x = 2 - 4y \quad \rightarrow \quad \frac{3x}{3} = \frac{2-4y}{3}$$

$$5y = -1 - 2x \quad \rightarrow \quad 3x = 2 - 4y \quad \rightarrow \quad x = 2$$

$$(3x + 4y = 2) \cdot (2)$$

$$\begin{array}{r} 6x + 8y = 4 \\ + (-6x - 15y = 3) \\ \hline -7y = 7 \\ \frac{-7y}{-7} = \frac{7}{-7} \\ y = -1 \end{array}$$

$$\begin{array}{r} 5y = -1 - 2x \\ \downarrow \downarrow \\ (2x + 5y = -1) \cdot (-3) \end{array} \quad \boxed{(2, -1)}$$

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