

Name:

Date:

Topic:

Class:

Main Ideas/Questions	Notes/Examples
Solve by Elimination	① LINE UP the equations.
	② MULTIPLY one or both equations by a number to result in a variable with the same coefficient.
	③ ADD or SUBTRACT the equations to eliminate this variable.
	④ SOLVE for the remaining variable.
	⑤ SUBSTITUTE your answer from step 4 into either original equation to find the other variable.

Directions: Solve each system of equations below by elimination. Identify the solution.

1. $x + 7y = 17$
 $-1(x - y = -7)$

$$\begin{array}{r} x + 7y = 17 \\ -x + y = 7 \\ \hline 8y = 24 \\ y = 3 \end{array}$$

$$\begin{array}{r} x - 3 = -7 \\ x = -4 \end{array}$$

$(-4, 3)$

2. $3x + 2y = 22$
 $+ 5x - 7y = 42$

$$\begin{array}{r} 3x + 2y = 22 \\ 3(8) + 2y = 22 \\ 24 + 2y = 22 \\ 2y = -2 \\ y = -1 \end{array}$$

$$\begin{array}{r} 8x = 64 \\ x = 8 \end{array}$$

$(8, -1)$

3. $4x - 9y = -42$
 $+4(x + 5y = 4)$

$$\begin{array}{r} -4x - 20y = -16 \\ +4x - 9y = -42 \\ \hline -29y = -58 \\ y = 2 \end{array}$$

$$\begin{array}{r} x + 5(2) = 4 \\ x + 10 = 4 \\ x = -6 \end{array}$$

$(-6, 2)$

4. $7x - 6y = -53$
 $-2(2x - 3y = -13)$

$$\begin{array}{r} -4x + 6y = 26 \\ 7x - 6y = -53 \\ \hline 3x = -27 \\ x = -9 \end{array}$$

$$\begin{array}{r} 7(-9) - 6y = -53 \\ -63 - 6y = -53 \\ -6y = 10 \\ y = -\frac{5}{3} \end{array}$$

$(-9, -\frac{5}{3})$

5. $5x + 3y = -7$
 $-5(2x + 7y = 3)$

$$\begin{array}{r} 10x + 6y = -14 \\ -10x - 35y = -15 \\ \hline -29y = -29 \\ y = 1 \end{array}$$

$$\begin{array}{r} 5x + 3(1) = -7 \\ 5x + 3 = -7 \\ 5x = -10 \\ x = -2 \end{array}$$

$(-2, 1)$

6. $3x - 9y = 9$
 $-3(4x - 12y = 36)$

$$\begin{array}{r} 12x - 36y = 36 \\ + -12x + 36y = -108 \\ \hline 0 = -72 \end{array}$$

$N.S.$

10-15, 22-27, 29