

Name _____

Module #3:

Date _____

**Worksheet 14c: Solving Linear Systems of Equations: Addition
(Elimination Method)**

 View Tutorial 14a (covers worksheets 14a, b and c)

→ Objective: Use the elimination method (addition & multiplication) in order to solve the system of equations.

Elimination Method Using Addition and Subtraction:

In systems of equations where the coefficient (the number in front of the variable) of the x or y terms are additive inverses, solve the system by adding the equations. Because one of the variables is eliminated, this method is called **elimination**.

Example 2:

Use elimination to solve the system of equations

$$x - 3y = 7 \text{ and } 3x + 3y = 9.$$

Add the two equations.

$$\begin{array}{r} x - 3y = 7 \\ + 3x + 3y = 9 \\ \hline 4x = 16 \\ \frac{4x}{4} = \frac{16}{4} \end{array} \quad x = 4$$

Substitute 4 for x in either original equation. Then solve for y.

$$\begin{array}{r} x - 3y = 7 \\ 4 - 3y = 7 \\ -3y = 3 \\ \frac{-3y}{-3} = \frac{3}{-3} \end{array} \quad y = -1$$

The solution of this system is (4, -1).

Use elimination to solve each system of equations:

1. $2x + 2y = -2$
 $3x - 2y = 12$

2. $4x - 2y = -1$
 $-4x + 4y = -2$

3. $x - y = 2$
 $x + y = -3$

(,)

(,)

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4. $6x + 5y = 4$
 $6x - 7y = -20$

5. $2x - 3y = 12$
 $4x + 3y = 24$

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