6-3 Notes: Elimination Using Addition and Subtraction

Elimination Using Addition In systems of equations in which the coefficients 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**.
Step 1)

Step 2)

Step 3)

Step 4)

Step 5)

Example 1: Use elimination to solve the system of equations.

$x - 3y = 7$
$3x + 3y = 9$

Example 1: The sum of two numbers is 70 and their difference is 24. Find the numbers.

Exercises:

Use elimination to solve each system of equations.

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

2. $2x - 3y = 14$
$x + 3y = -11$

3. $3x - y = -9$
$-3x - 2y = 0$

4. Rema is older than Ken. The difference of their ages is 12 and the sum of their ages is 50. Find the age of each.

Elimination Using Subtraction In systems of equations where the coefficients of the x or y terms are the same, solve the system by subtracting the equations. (most students will simply multiply one equation by -1 and then add the equations together)

Example: Use elimination to solve the system of equations.

$$2x - 3y = 11$$
$$5x - 3y = 14$$

Exercises

Use elimination to solve each system of equations.

1. $6x + 5y = 4$
$6x - 7y = -20$

2. $3m - 4n = -14$
$3m + 2n = -2$

3. $3a + b = 1$
$a + b = 3$

4. GEOMETRY Two angles are supplementary. The measure of one angle is 10° more than three times the other. Find the measure of each angle.