

## Solving Systems of Equations by Elimination (Multiplication)

**Example 1:**

Solve the system using elimination:  $2x + 2y = 6$   
 $3x - y = 5$

**Step 1:** Put the equations in Standard Form

They already are.

**Step 2:** Determine which variable to eliminate.

\_\_\_\_\_ of the coefficients are the \_\_\_\_\_

Find the \_\_\_\_\_

LCM x = \_\_\_\_\_ LCM y = \_\_\_\_\_

Which is earlier to obtain? \_\_\_\_\_

**Step 3:** Multiply the equations and then add or subtract.

Multiply the \_\_\_\_\_ equation by \_\_\_\_\_.

**Step 4:** Plug back in to find the other variable.

(\_\_\_\_, \_\_\_\_)

**Example 2:**

Solve the system using elimination:

$$\begin{aligned} 2x + 6y &= -2 \\ -x + 2y &= 6 \end{aligned}$$

**Step 1:** Put the equations in Standard Form

They already are.

**Step 2:** Determine which variable to eliminate.

\_\_\_\_\_ of the coefficients are the \_\_\_\_\_

Find the \_\_\_\_\_

LCM x = \_\_\_\_\_ LCM y = \_\_\_\_\_

Which is earlier to obtain? \_\_\_\_\_

**Step 3:** Multiply the equations and then add or subtract.

Multiply the \_\_\_\_\_ equation by \_\_\_\_\_.

**Step 4:** Plug back in to find the other variable.

(\_\_\_\_\_, \_\_\_\_\_)

**Example 3:**

Solve the system using elimination:

$$8x + 14y = 4$$

$$-6x - 7y = -10$$

**Step 1: Put the equations in Standard Form**

They already are.

**Step 2: Determine which variable to eliminate.**

\_\_\_\_\_ of the coefficients are the \_\_\_\_\_

Find the \_\_\_\_\_

LCM x = \_\_\_\_\_ LCM y = \_\_\_\_\_

Which is earlier to obtain? \_\_\_\_\_

**Step 3: Multiply the equations and then add or subtract.**

Multiply the \_\_\_\_\_ equation by \_\_\_\_\_.

**Step 4: Plug back in to find the other variable.**

(\_\_\_\_, \_\_\_\_)

**Example 4:**

Solve the system using elimination:

$$\begin{aligned} -8x - y &= -13 \\ 5x - 3y &= -10 \end{aligned}$$

**Step 1: Put the equations in Standard Form**

They already are.

**Step 2: Determine which variable to eliminate.**

\_\_\_\_\_ of the coefficients are the \_\_\_\_\_

Find the \_\_\_\_\_

LCM x = \_\_\_\_\_ LCM y = \_\_\_\_\_

Which is earlier to obtain? \_\_\_\_\_

**Step 3: Multiply the equations and then add or subtract.**

Multiply the \_\_\_\_\_ equation by \_\_\_\_\_.

**Step 4: Plug back in to find the other variable.**

(\_\_\_\_\_, \_\_\_\_\_)