Solving Systems of Equations by Elimination

(Double Multiplication)

Sometimes, none of the variables have the similar coefficients or can have similar coefficients after multiplying one equation.
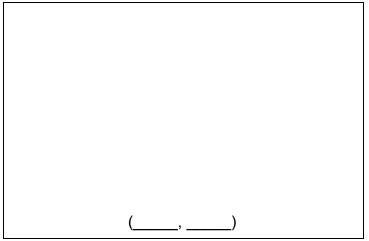
In this case, we have to multiply **BOTH** equations.

Example 1:

Solve the system using elimination:

$$4x + 2y = 8$$
$$3x + 3y = 9$$

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.	Multiply the **first** equation by _____. Multiply the **second** equation by _____.
Step 4: Add or subtract to eliminate one variable.	
Step 5: Plug back in to find the other	

variable.

$$(\underline{}, \underline{})$$

Example 2:
Solve the system using elimination: $2x + 5y = 11$
$4x + 3y = 1$

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.**

Multiply the **<u>first</u>** equation by _____.

Multiply the **<u>second</u>** equation by _____.

Step 4: **Add or subtract to eliminate one variable.**

Step 5: Plug back in to find the other variable.
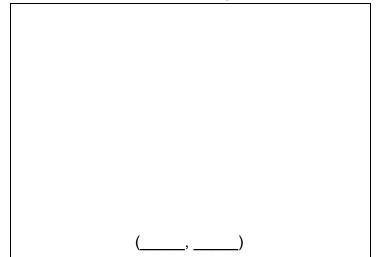
(_____, _____)

Example 3:

Solve the system using elimination: $5x + y = 9$
$10x - 7y = -18$

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.

Multiply the **first** equation by _____.

Multiply the **second** equation by _____.

Step 4: Add or subtract to eliminate one variable.

Step 5: **Plug back in to find the other variable.**

(_____ , _____)

Example 4:

Solve the system using elimination:

$$-3x + 7y = -16$$
$$-9x + 5y = 16$$

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.**

Multiply the **<u>first</u>** equation by _____.

Multiply the **<u>second</u>** equation by _____.

Step 4: **Add or subtract to eliminate one variable.**

Step 5: Plug back in to find the other variable.

(_____, _____)