

# NOTES: SYSTEMS OF EQUATIONS

*Solve by Elimination*

*Day 2*

## WHEN TO MULTIPLY FIRST!

If you do not have equations where you can eliminate a variable, you can \_\_\_\_\_ one or both equations by a \_\_\_\_\_ to create the same but opposite coefficients for one of the variables.

## MULTIPLY ONE EQUATION BY A CONSTANT

1. Write both equations so that \_\_\_\_\_ terms are aligned.
2. \_\_\_\_\_ one equation by a constant to create like but opposite coefficients.
3. Add equations to eliminate a variable and solve for the value of the other variable.
4. \_\_\_\_\_ that value into one of the equations to determine the value of the other variable.

$$\begin{cases} 2x - 6y = 24 \\ x + 3y = 6 \end{cases}$$

In this case, you can multiply the second equation by 2 to eliminate the y variable.

## MULTIPLY BOTH EQUATIONS BY A CONSTANT

1. Write both equations so that \_\_\_\_\_ terms are aligned.
2. \_\_\_\_\_ both equations by a constant to create like but opposite coefficients.
3. Add equations to eliminate a variable and solve for the value of the other variable.
4. \_\_\_\_\_ that value into one of the equations to determine the value of the other variable.

$$\begin{cases} 3x + 2y = 9 \\ 5x + 3y = 22 \end{cases}$$

In this case, you can multiply the first equation by 3 and the second equation by -2 to eliminate the y variable.

## YOUR TURN!

1. 
$$\begin{cases} 5x + y = -17 \\ 8x - 3y = -18 \end{cases}$$

2. 
$$\begin{cases} 2x + 3y = 6 \\ 4x + 6y = 12 \end{cases}$$

3. 
$$\begin{cases} 4x + 3y = -2 \\ 3x + 5y = 15 \end{cases}$$

4. 
$$\begin{cases} 5x + 3y = 32 \\ 2x = 10 - 4y \end{cases}$$

# A. \_\_\_\_\_ SYSTEMS OF EQUATIONS

*Solve by Elimination*

*Day 2*

Solve each system of equations using the elimination method.

1. 
$$\begin{cases} 2x + 5y = 31 \\ 4x + y = 17 \end{cases}$$

2. 
$$\begin{cases} x - 3y = 14 \\ 3x + 4y = 16 \end{cases}$$

3. 
$$\begin{cases} 6x + 4y = -10 \\ 4x - 8y = 36 \end{cases}$$

4. 
$$\begin{cases} 3x + 2y = 5 \\ 6x + 4y = -15 \end{cases}$$

5. 
$$\begin{cases} 3x - 2y = 12 \\ 5x + 3y = 20 \end{cases}$$

6. 
$$\begin{cases} 2y = 4x + 4 \\ 5x - 7y = -32 \end{cases}$$

7. 
$$\begin{cases} 9x + 15y = 18 \\ 5y = 6 - 3x \end{cases}$$

8. 
$$\begin{cases} 6x = 4y + 2 \\ 5x - 6y = 15 \end{cases}$$