## Lesson 1.9.2: Solving Systems of Linear Equations by **Elimination Method**

1. Choose which variable you want to eliminate.

 $\frac{1}{2}$ 2. Multiply one or both equations by an appropriate constant so that the variable that you want to eliminate becomes additive inverse of each other.

3. Add the resulting equations.

\$4. Solve the equation obtained in step 3.

5. Substitute the value of the variable obtained in step 4 into one of the original equations and solve for the other variable.

6. Check the solution in the original equations.

### **Practice Exercises 1.9.2**

Find the solutions of the following systems of linear equations using the elimination method.

$$1. \begin{cases} x+y = 12 \\ x-y = 8 \end{cases}$$

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

1. 
$$\begin{cases} x+y = 12 \\ x-y = 8 \end{cases}$$
 4.  $\begin{cases} x+y = -2 \\ x+y = -2 \end{cases}$  2.  $\begin{cases} 3x+6y = 4 \\ 6x+12y = 8 \end{cases}$  5.  $\begin{cases} x-8y = 2 \\ 3x-24y = 6 \end{cases}$ 

5. 
$$\begin{cases} x - 8y &= 2 \\ 3x - 24y &= 6 \end{cases}$$

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

### Activity 1.9.2

Find the solutions of the following systems of linear equations using the elimination method.

1. 
$$\begin{cases} y = \frac{2}{3}x + 6 \\ y = -\frac{3}{2}x + 6 \end{cases}$$

3. 
$$\begin{cases} 4x - y &= 8 \\ 3x + 2y &= 6 \end{cases}$$

$$3x + 2y = 6$$

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

$$\begin{cases} x + y = 5 \end{cases}$$

5. 
$$\begin{cases} x - 2y = 5 \\ x + y = 5 \\ y = \frac{1}{2}x + 2 \end{cases}$$

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3. Add the resulting equations.

1. 
$$\begin{cases} y = \frac{2}{3}x + 6 \\ y = -\frac{3}{2}x + 6 \end{cases}$$

$$3. \begin{cases} 4x - y = 8 \\ 3x + 2y = 6 \end{cases}$$

$$2. \begin{cases} x+y &= 7 \\ x-y &= 1 \end{cases}$$

3. 
$$\begin{cases} 4x - y &= 8 \\ 3x + 2y &= 6 \end{cases}$$
4. 
$$\begin{cases} x + 4y &= 8 \\ x - 2y &= 2 \end{cases}$$
5. 
$$\begin{cases} x + y = 5 \\ y = -x + 2 \end{cases}$$

5. 
$$\begin{cases} x - 2y = 5 \\ x + y = 5 \\ y = \frac{1}{2}x + 2 \end{cases}$$

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## **Practice Exercises 1.9.2**

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# Activity 1.9.2

Activity 1.9.2 Find the solutions of the following systems of linear equations using the elimination method.

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

3. 
$$\begin{cases} 4x - y = 8 \\ 3x + 2y = 6 \end{cases}$$

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

5. 
$$\begin{cases} x + y = 5 \\ y = \frac{1}{2}x + 2 \end{cases}$$

 $\int x + y = 12$ 

1. 
$$\begin{cases} x - y = 8 \end{cases}$$

**Practice Exercises 1.9.2** 

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

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$$\begin{cases} y = \frac{2}{3}x + 6 \\ y = -\frac{3}{2}x + 6 \end{cases}$$
2. 
$$\begin{cases} x + y = 7 \\ x - y = 1 \end{cases}$$

$$3. \begin{cases} 4x - y = 8 \\ 3x + 2y = 6 \end{cases}$$

4. 
$$\begin{cases} x + 2y = 8 \\ x - 2y = 2 \end{cases}$$
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5. 
$$\begin{cases} x+y=5\\ y=\frac{1}{2}x+2 \end{cases}$$