

Fix #1

Name KEY  
Date \_\_\_\_\_ Class \_\_\_\_\_

# More Practice with Solving Systems by Elimination

Use elimination to solve the system of linear equations.

$$\begin{array}{r} 1. \quad -2x + y = 1 \\ \quad -4x + 2y = -6 \\ \hline \quad \quad \quad 0 = -8 \end{array}$$

no solution

none

$$\begin{array}{r} 2. \quad x - y = 4 \\ \quad + x + y = 4 \\ \hline \quad 2x = 8 \\ \quad \quad x = 4 \end{array}$$

$$\begin{array}{r} 4 + y = 4 \\ \quad \quad y = 0 \end{array}$$

(4, 0)

$$\begin{array}{r} 4 - 0 = 4 \\ \quad 4 = 4 \quad \checkmark \end{array} \quad \begin{array}{r} 4 + 0 = 4 \\ \quad 4 = 4 \end{array}$$

$$\begin{array}{r} 3. \quad 6x + 3y = 6 \\ \quad -3(2x + y = 2) \quad -6x - 3y = -6 \\ \hline \quad \quad \quad 0 = 0 \end{array}$$

infinite

$$\begin{array}{r} 4. \quad -x - 2y = 3 \\ \quad -2x + 4y = -2 \\ \hline \quad -4x = 4 \end{array}$$

(-1, -1)

$$\begin{array}{r} -4x = 4 \\ \quad \quad x = -1 \end{array}$$

$$\begin{array}{r} -2(-1) + 4y = -2 \\ \quad 2 + 4y = -2 \\ \quad \quad 4y = -4 \\ \quad \quad \quad y = -1 \end{array}$$

$$\begin{array}{r} -(-1) - 2(-1) = 3 \\ \quad 1 + 2 = 3 \\ \quad \quad 3 = 3 \quad \checkmark \end{array} \quad \begin{array}{r} -2(-1) + 4(-1) = -2 \\ \quad 2 - 4 = -2 \\ \quad \quad -2 = -2 \end{array}$$

$$\begin{array}{r} 5. \quad -3x - 2y = 6 \\ \quad -6x + 4y = -12 \\ \hline \quad -12x = 0 \end{array}$$

$$\begin{array}{r} -3(0) - 2y = 6 \\ \quad -2y = 6 \\ \quad \quad y = -3 \end{array}$$

$$\begin{array}{r} -12x = 0 \\ \quad \quad x = 0 \end{array}$$

(0, -3)

$$\begin{array}{r} -3(0) - 2(-3) = 6 \\ \quad 6 = 6 \quad \checkmark \end{array}$$

$$\begin{array}{r} -6(0) + 4(-3) = -12 \\ \quad -12 = -12 \end{array}$$

$$\begin{array}{r} 6. \quad x + 2y = -3 \\ \quad x - 4y = 15 \\ \hline \quad -6y = 18 \end{array}$$

$$\begin{array}{r} x - 4(-3) = 15 \\ \quad x + 12 = 15 \\ \quad \quad x = 3 \end{array}$$

$$\begin{array}{r} -6y = 18 \\ \quad \quad y = -3 \end{array}$$

(3, -3)

$$\begin{array}{r} 3 + 2(-3) = -3 \\ \quad 3 - 6 = -3 \\ \quad \quad -3 = -3 \quad \checkmark \end{array}$$

$$\begin{array}{r} 3 - 4(-3) = 15 \\ \quad 3 + 12 = 15 \\ \quad \quad 15 = 15 \end{array}$$

$$\begin{array}{r} 7. \quad 3x + y = -8 \\ + \quad -3x + 4y = -2 \end{array}$$

$$\begin{array}{r} \boxed{(-2, -2)} \quad 5y = -10 \quad 3x - 2 = -8 \\ \quad \quad \quad y = -2 \quad \quad \quad 3x = -6 \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad x = -2 \end{array}$$

$$\begin{array}{r} 3(-2) - 2 = -8 \\ -6 - 2 = -8 \\ -8 = -8 \quad \checkmark \end{array} \quad \begin{array}{r} -3(-2) + 4(-2) = -2 \\ 6 - 8 = -2 \\ -2 = -2 \end{array}$$

$$\begin{array}{r} 8. \quad x - y = 5 \\ - (x - y = 2) \end{array} \quad \begin{array}{r} x - y = 5 \\ -x + y = 2 \end{array}$$

$$\begin{array}{r} 0 \neq 3 \\ \boxed{\text{none}} \end{array}$$

$$\begin{array}{r} 9. \quad 3x - 10y = -15 \\ -3x + 10y = 15 \end{array}$$

$$\begin{array}{r} 0 = 0 \\ \boxed{\text{infinite}} \end{array}$$

$$\begin{array}{r} 10. \quad (-x - 5y = 30) \\ \quad \quad 2x - 7y = 25 \end{array} \quad \begin{array}{r} -2x - 10y = 60 \\ + \quad 2x - 7y = 25 \end{array}$$

$$\begin{array}{r} 2x - 7(-5) = 25 \\ 2x + 35 = 25 \\ 2x = -10 \\ x = -5 \end{array} \quad \begin{array}{r} -17y = 85 \\ y = -5 \\ \boxed{(-5, -5)} \end{array}$$

$$\begin{array}{r} -5 - 5(-5) = 30 \\ 5 + 25 = 30 \\ 30 = 30 \quad \checkmark \end{array} \quad \begin{array}{r} 2(-5) - 7(-5) = 25 \\ -10 + 35 = 25 \\ 25 = 25 \end{array}$$

$$\begin{array}{r} 11. \quad (-x + 8y = 16) \\ \quad \quad 3x + 4y = 36 \end{array} \quad \begin{array}{r} -3x + 24y = 48 \\ + \quad 3x + 4y = 36 \end{array}$$

$$\begin{array}{r} 3x + 4(3) = 36 \\ 3x + 12 = 36 \\ 3x = 24 \\ x = 8 \end{array} \quad \begin{array}{r} 28y = 84 \\ y = 3 \\ \boxed{(8, 3)} \end{array}$$

$$\begin{array}{r} -8 + 8(3) = 16 \\ -8 + 24 = 16 \\ 16 = 16 \quad \checkmark \end{array} \quad \begin{array}{r} 3(8) + 4(3) = 36 \\ 24 + 12 = 36 \\ 36 = 36 \end{array}$$

$$\begin{array}{r} 12. \quad (6x - 5y = 3) \\ \quad \quad -12x + 10y = 5 \end{array} \quad \begin{array}{r} 12x - 10y = 6 \\ -12x + 10y = 5 \end{array}$$

$$\begin{array}{r} 0 \neq 11 \\ \boxed{\text{none}} \end{array}$$

$$\begin{array}{r}
 13. \begin{array}{l} -2 \\ (-2x + y = 6) \\ -4x + 2y = -6 \end{array} \quad \begin{array}{l} 4x - 2y = -12 \\ -4x + 2y = -6 \\ \hline 0 = -18 \end{array}
 \end{array}$$

none

$$\begin{array}{r}
 14. \begin{array}{l} x - 4y = 7 \\ 4(5x + y = -7) \end{array} \quad \begin{array}{l} x - 4y = 7 \\ 20x + 4y = -28 \\ \hline 21x = -21 \\ x = -1 \end{array}
 \end{array}$$

$$\begin{array}{r}
 -1 - 4y = 7 \\ -4y = 8 \\ y = -2 \\ \hline -1 - 4(-2) = 7 \\ -1 + 8 = 7 \\ 7 = 7 \quad \checkmark
 \end{array}$$

$(-1, -2)$

$$\begin{array}{r}
 15. \begin{array}{l} -9x + 3y = -6 \\ -3(-3x + y = -2) \end{array} \quad \begin{array}{l} -9x + 3y = -6 \\ 9x - 3y = 6 \\ \hline 0 = 0 \end{array}
 \end{array}$$

infinite

$$\begin{array}{r}
 16. \begin{array}{l} 4x - y = -11 \\ 6x + y = -9 \end{array}
 \end{array}$$

$$\begin{array}{r}
 10x = -20 \\ x = -2
 \end{array}$$

$$\begin{array}{r}
 4(-2) - y = -11 \\ -8 - y = -11 \\ -y = -3 \\ y = 3
 \end{array}$$

$(-2, 3)$

$$\begin{array}{r}
 4(-2) - 3 = -11 \\ -8 - 3 = -11
 \end{array}$$

$$\begin{array}{r}
 6(-2) + 3 = -9 \\ -12 + 3 = -9 \\ -9 = -9
 \end{array}$$

$(-2, -1)$

$$\begin{array}{r}
 17. \begin{array}{l} -7 \\ (x - y = 2) \\ 7x - 7y = 14 \end{array} \quad \begin{array}{l} -7x + 7y = -14 \\ 7x - 7y = 14 \\ \hline 0 = 0 \end{array}
 \end{array}$$

infinite

$$\begin{array}{r}
 18. \begin{array}{l} 5x + 4y = 2 \\ -5x - 4y = -1 \end{array} \\ \text{of 1}
 \end{array}$$

none