

Name: _____

Hour: _____

Date: _____

Key

9-12-18

Solving Systems of Linear Equations by Elimination Practice

Use the elimination method to solve the following systems of linear equations.

1) $3x + 4y = -18$

$- 3x + 3y = 9$

$$y = -27$$

$$3x + 3(-27) = 9 \quad (30, -27)$$

$$\begin{array}{r}
 3x - 81 = 9 \\
 +81 \quad +81 \\
 \hline
 3x = 90 \\
 \hline
 3
 \end{array}$$

$$x = 30$$

3) $7x + y = -2$

$+ -7x - 3y = -8$

$$\begin{array}{r}
 -2y = -10 \\
 \hline
 -2 \quad -2
 \end{array}$$

$$y = 5$$

$$7x + 5 = -2 \quad (-1, 5)$$

$$\begin{array}{r}
 7x = -7 \\
 \hline
 7 \quad 7
 \end{array}$$

$$x = -1$$

5) $(2x - y = -25) \div 3$

$x + 3y = 5$

$$\begin{array}{r}
 6x - 3y = -75 \\
 + x + 3y = 5 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 7x = -70 \\
 \hline
 7 \quad 7
 \end{array}$$

$$x = -10$$

$$-10 + 3y = 5 \quad (-10, 5)$$

$$\begin{array}{r}
 +10 \quad +10 \\
 \hline
 3y = 15 \\
 \hline
 3 \quad 3
 \end{array}$$

$$y = 5$$

2) $12x - 10y = -8$

$- 2x - 10y = 32$

$$\begin{array}{r}
 10x = -40 \\
 \hline
 10 \quad 10
 \end{array}$$

$$x = -4$$

$$2(-4) - 10y = 32 \quad (-4, -4)$$

$$\begin{array}{r}
 -8 - 10y = 32 \\
 +8 \quad +8
 \end{array}$$

$$\begin{array}{r}
 -10y = 40 \\
 \hline
 -10 \quad -10
 \end{array}$$

$$y = -4$$

4) $7x + 2y = 18$

$- 3x + 2y = 2$

$$\begin{array}{r}
 4x = 16 \\
 \hline
 4 \quad 4
 \end{array}$$

$$x = 4$$

$$3(4) + 2y = 2 \quad (4, -5)$$

$$\begin{array}{r}
 12 + 2y = 2 \\
 -12 \quad -12
 \end{array}$$

$$\begin{array}{r}
 2y = -10 \\
 \hline
 2 \quad 2
 \end{array}$$

$$y = -5$$

6) $-4x + y = -3$

$4(x + 4y = 22)$

$$\begin{array}{r}
 -4x + y = -3 \\
 + 4x + 16y = 88 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 17y = 85 \\
 \hline
 17 \quad 17
 \end{array}$$

$$y = 5$$

$$(2, 5)$$

$$x + 4(5) = 22$$

$$\begin{array}{r}
 x + 20 = 22 \\
 -20 \quad -20
 \end{array}$$

$$x = 2$$

$$\begin{array}{l} 7) (2x - y = 0) 5 \\ 6x - 5y = -20 \end{array}$$

$$\begin{array}{r} 10x - 5y = 0 \\ -6x - 5y = -20 \end{array}$$

$$\frac{4x}{4} = \frac{20}{4}$$

$$x = 5$$

$$2(5) - y = 0$$

$$\begin{array}{r} 10 - y = 0 \\ -10 \quad -10 \end{array}$$

$$\frac{-y}{-1} = \frac{-10}{-1}$$

$$y = 10$$

$$(5, 10)$$

$$\begin{array}{l} 9) (-2x - 6y = -12) -5 \\ (-7x - 10y = -2) 3 \end{array}$$

$$\begin{array}{r} 10x + 30y = 60 \\ + -21x - 30y = -6 \end{array}$$

$$\frac{-11x}{-11} = \frac{54}{-11}$$

$$x = -\frac{54}{11}$$

$$-2\left(-\frac{54}{11}\right) - 6y = -12 \quad \rightarrow \quad \frac{-12}{-6} = \frac{40}{11}$$

$$\frac{108}{11} - 6y = \frac{-132}{11}$$

$$\frac{-108}{11} \quad \frac{-108}{11}$$

$$-6y = \frac{-240}{11}$$

$$\frac{-6}{-6} = \frac{-240}{-6} \quad y = \frac{40}{11}$$

$$\left(-\frac{54}{11}, \frac{40}{11}\right)$$

$$\begin{array}{l} 8) (-4x - 7y = 7) 7 \\ (7x - 2y = 2) 4 \end{array}$$

$$\begin{array}{r} -28x - 49y = 49 \\ + 28x - 8y = 8 \end{array}$$

$$\frac{-57y}{-57} = \frac{57}{-57}$$

$$y = -1$$

$$-4x - 7(-1) = 7 \quad (0, -1)$$

$$\begin{array}{r} -4x + 7 = 7 \\ -7 \quad -7 \end{array}$$

$$\frac{-4x}{-4} = \frac{0}{-4} \quad x = 0$$

$$\begin{array}{l} 10) (7x + 2y = -5) 5 \\ (-4x - 5y = -1) 2 \end{array}$$

$$\begin{array}{r} 35x + 10y = -25 \\ + -8x - 10y = -2 \end{array}$$

$$\frac{27x}{-27} = \frac{-27}{-27}$$

$$x = 1$$

$$7(1) + 2y = -5 \quad (1, -6)$$

$$\begin{array}{r} 7 + 2y = -5 \\ -7 \quad -7 \end{array}$$

$$\frac{2y}{2} = \frac{-12}{2}$$

$$y = -6$$