

Solving Systems of Linear Equations Practice

Name Key Date _____

Solve algebraically (using substitution or elimination).

1. $2x = 8$
 $x + y = 2$

$$\frac{2x}{2} = \frac{8}{2}$$

$$x = 4$$

$$(4, -2)$$

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

2. $x + 4y = 10$
 $x - 3y = 11$

$$\frac{-x + 4y = 10}{x - 3y = 11} \quad (74, 21)$$

$$x - 3(21) = 11$$

$$\begin{array}{r} x - 63 = 11 \\ + 63 \quad + 63 \\ \hline \end{array}$$

$$x = 74$$

3. $4x - 2y = -6$
 $x + 3y = 9$

$$(0, 3)$$

4. $-4x + y = -10$
 $6x + 2y = 22$

$$(3, 2)$$

$$\frac{-3y - 3y}{-3y - 3y}$$

$$x = 9 - 3y$$

$$x = 9 - 9 = 0$$

$$\begin{array}{r} 8x - 2y = 20 \\ 6x + 7y = 22 \\ \hline \end{array}$$

$$\frac{14x}{14} = \frac{42}{14}$$

$$x = 3$$

$$\begin{array}{r} -12 + y = -10 \\ +12 \quad +12 \\ \hline \end{array}$$

$$y = 2$$

$$4(9 - 3y) - 2y = -6$$

$$36 - 12y - 2y = -6$$

$$36 - 14y = -6$$

$$\frac{-36 \quad -36}{-36 \quad -36}$$

$$\frac{-14y}{-14} = \frac{-42}{-14}$$

$$y = 3$$

$$\begin{array}{r} 2x - 3y = 1 \\ 5. + \quad -2x + 3y = 1 \\ \hline \end{array}$$

$$0 \neq 2$$

No Solution

$$\begin{array}{r} x + y = 6 \\ 7. + \quad x - y = 12 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{18}{2}$$

(9, -3)

$$x = 9$$

$$\begin{array}{r} 9 + y = 6 \\ -9 \quad -9 \\ \hline y = -3 \end{array}$$

$$\begin{array}{r} 3(21x + 28y = 14) \\ 9. -7(9x + 12y = 6) \\ \hline \end{array}$$

$$\begin{array}{r} + 63x + 84y = 42 \\ -63x - 84y = -42 \\ \hline \end{array}$$

$$0 = 0$$

Infinitely Many Solutions

$$\begin{array}{r} 7x + 4y = 5 \\ 6. \quad x - 6y = -19 \\ \quad + 6y \quad + 6y \\ \hline x = 6y - 19 \end{array}$$

(-1, 3)

$$x = 18 - 19$$

$$x = -1$$

$$7(6y - 19) + 4y = 5$$

$$42y - 133 + 4y = 5$$

$$46y - 133 = 5$$

$$46y = 138 \quad y = 3$$

$$-6x + 2y = -2$$

$$8. \quad 2(-4x - y = 8)$$

(-1, -4)

$$\begin{array}{r} + -8x - 2y = 16 \\ -6x + 2y = -2 \\ \hline \end{array}$$

$$\frac{-14x}{-14} = \frac{14}{-14}$$

$$x = -1$$

$$\begin{array}{r} 4 - y = 8 \\ -4 \quad -4 \\ \hline -y = 4 \\ -1 \quad -1 \\ \hline y = -4 \end{array}$$

$$\begin{array}{r} 3x - 5y = -10 \\ 10. \quad 3(-x + 2y = 18) \\ \hline \end{array}$$

$$\begin{array}{r} -3x + 6y = 54 \\ + 3x - 5y = -10 \\ \hline \end{array}$$

$$y = 44$$

(70, 44)

$$\begin{array}{r} -x + 88 = 18 \\ -88 \quad -88 \\ \hline \end{array}$$

$$\frac{-x}{-1} = \frac{-70}{-1} \quad x = 70$$