

1. Solve the system of equations by using the graphing method.

$$3x - 2y = -2 \rightarrow \frac{-2y}{-2} = \frac{-3x - 2}{-2}$$

$$x + 3y = -30 \quad \frac{-30}{-2} \quad \frac{-2}{-2}$$

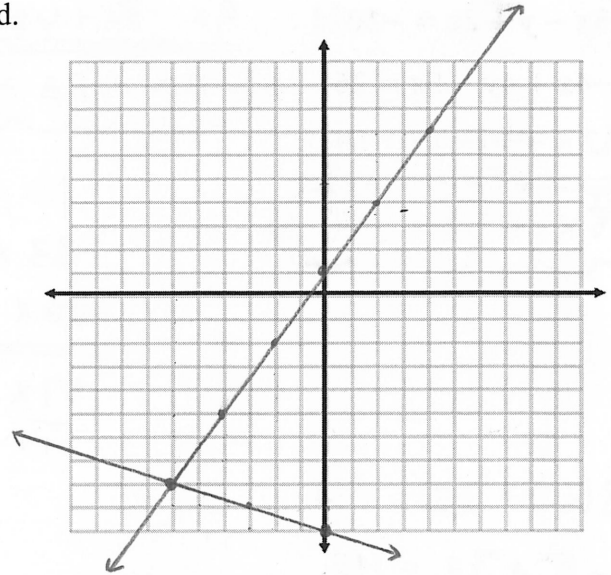
$$\frac{3y}{3} = \frac{-x - 30}{3} \quad y = \frac{3}{2}x + 1$$

$$y = -\frac{1}{3}x - 10$$

$$b = -10$$

$$(-6, -8)$$

$$m = \frac{-1}{3} \text{ or } \frac{1}{-3}$$



2. Solve by substitution.

$$y = 6x + 11$$

$$2y - 4x = 14$$

$$(-1, 5)$$

$$2(6x + 11) - 4x = 14$$

$$12x + 22 - 4x = 14$$

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

$$y = 6(1) + 11$$

$$y = 5$$

$$x = -1$$

3. Solve by elimination

$$3x - 2y = -2$$

$$3x - 2y = -2$$

$$-3(x + 3y = 14)$$

$$-3x - 9y = -42$$

$$x + 3(4) = 14$$

$$\frac{-11y}{-11} = \frac{-44}{-11}$$

$$x + 12 = 14$$

$$x = 2$$

$$y = 4$$

$$(2, 4)$$

Solve each system using any method.

$$-2(x - 3y = 2)$$

$$2x - 5y = 2$$

OR

$$x = 2 + 3y$$

$$2(2 + 3y) - 5y = 2$$

$$4 + 6y - 5y = 2$$

$$4 + y = 2$$

$$-4 \quad -4$$

$$y = -2$$

$$x - 3(-2) = 2$$

$$x + 6 = 2$$

$$x = -4$$

$$x = 2 + 3(-2)$$

$$x = 2 - 6$$

$$x = -4$$

$$(-4, -2)$$

$$5. \quad \begin{matrix} 2y & = & 2x & - & y & + & 4 \\ +y & & +y & & & & \end{matrix}$$

$$\begin{matrix} 3x & = & x & + & 3y & + & 4 \\ -x & & -x & & -3y & & \end{matrix}$$

$$-2x + 3y = 4$$

$$2x - 3y = 4$$

$$0 \neq 8$$

$$\text{No Solution}$$

★ Not a good substitution problem ★

Elimination

Substitution

6. Solving using any method.

$$2x + 3y - 4z = 15$$

$$3(3x - y + 2z = -10) \div$$

$$-4x + 4y - 5z = 26$$

$$12x - 4y + 8z = -40$$

$$-2(8x + 3z = -14)$$

$$8(-1) + 3z = -14$$

$$-8 + 3z = -14$$

$$+8 \qquad +8$$

$$\frac{3z}{3} = \frac{-6}{3}$$

$$z = -2$$

(Eliminating y)

$$2x + 3y - 4z = 15$$

$$9x - 3y + 6z = -30$$

$$3(11x + 2z = -15)$$

$$33x + 6z = -45$$

$$-16x - 6z = 28$$

$$\frac{17x}{17} = \frac{-17}{17}$$

$$x = -1$$

$$2(-1) + 3y - 4(-2) = 15$$

$$-2 + 3y + 8 = 15$$

$$3y + 6 = 15$$

$$\frac{3y}{3} = \frac{9}{3}$$

$$y = 3$$

$$(-1, 3, -2)$$

$$3 - 2 = 1 \quad -1 - 3 = -4 \quad 2 + 4 = 6 \quad -10 - 15 = -25$$

$$\left| \begin{array}{ccc|c} 2 & 3 & -4 & -15 \\ 3 & -1 & 2 & -10 \\ -4 & 4 & -5 & 26 \end{array} \right|$$

$$R_2 - R_1 \rightarrow R_1$$

$$\begin{array}{ccc|c} -3 & 12 & -18 & 75 \\ \hline 1 & -4 & 6 & -25 \\ 3 & -1 & 2 & -10 \\ -4 & 4 & -5 & 26 \end{array}$$

$$-3R_1 + R_2 \rightarrow R_2$$

$$\begin{array}{ccc|c} 4 & -16 & 24 & -100 \\ \hline 1 & -4 & 6 & -25 \\ 0 & 11 & -16 & 65 \\ -4 & 4 & -5 & 26 \end{array}$$

$$4R_1 + R_3 \rightarrow R_3$$

$$\begin{array}{ccc|c} 1 & -4 & 6 & -25 \\ 0 & 11 & -16 & 65 \\ 0 & -12 & 19 & -74 \\ \hline 0 & -132 & 209 & -814 \end{array}$$

$$12R_2 + 11R_3 \rightarrow R_3$$

$$\left| \begin{array}{ccc|c} 1 & -4 & 6 & -25 \\ 0 & 11 & -16 & 65 \\ 0 & 17 & -34 & -34 \end{array} \right|$$

$$x - 4(3) + 6(-2) = -25$$

$$x - 12 - 12 = -25$$

$$\begin{array}{r} x - 24 = -25 \\ +24 \quad +24 \end{array}$$

$$\underline{x = -1}$$

$$\begin{array}{l} 11y - 16(-2) = 65 \\ 11y + 32 = 65 \\ -32 \quad -32 \end{array}$$

$$\underline{11y = 33}$$

$$\underline{y = 3}$$

$$\begin{array}{l} 17z = -34 \\ \hline z = -2 \end{array}$$

$$\boxed{(-1, 3, -2)}$$

8. Lyle: 18 baskets, Kyle: 18 baskets, Cliff: 6 baskets 9. peach = 35 calories, orange = 65 calories
10. 12 dimes, 19 quarters 11. 950 student tickets, 650 adult tickets 12. \$234