

Pre Calculus
Study Guide: Chapter 2

For #1:

- Graph the system of equations below using the graphing calculator.
- Sketch the graph.
- Indicate the window.
- Find the solution.

$$\begin{cases} y = 326x + 200 \\ y = 226x + 1600 \end{cases}$$

2. Solve using substitution.

$$\begin{cases} 2x - y = 2 \\ 3x - 2y = 11 \end{cases}$$

3. Solve using elimination.

$$\begin{cases} 6x - 3y = -6 \\ -5x + 7y = 41 \end{cases}$$

4. Describe the graphs and the number of solutions of the following types of systems of equations:

- a. Consistent and independent
- b. Consistent and dependent
- c. Inconsistent

5. Solve.

$$\begin{cases} -3x = -y - z + 2 \\ 5x + 2y - 4z = 21 \\ x - 3y + 10 = 7z \end{cases}$$

For #6:

- Solve the system of inequalities by graphing. Show your graphs.
- Name the coordinates of the vertices of the polygonal convex set.
- Find the maximum and minimum values of the function.

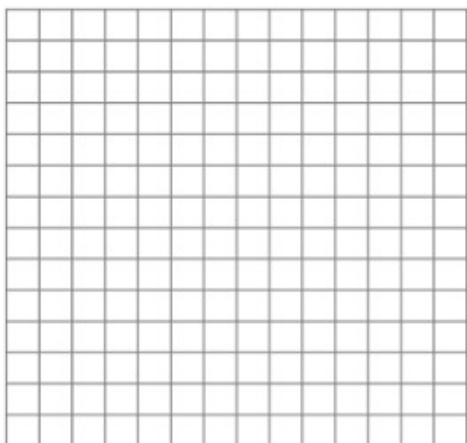
$$x \geq 1$$

$$y \geq -2$$

$$y + x \leq 6$$

$$y \leq 10 - 2x$$

$$f(x, y) = 2x + 3y$$



7. Dr. Chen told Miranda that her new puppy needs a diet that includes at least 1.54 ounces of protein and 0.56 ounce of fat each day to grow into a healthy dog. Each cup of Good Start puppy food contains 0.84 ounce of protein and 0.21 ounce of fat. Each cup of Sirius puppy food contains 0.56 ounce of protein and 0.49 ounce of fat. If Good Start puppy food costs 36¢ per cup and Sirius costs 22¢ per cup, how much of each food should Miranda use in order to satisfy the dietary requirements at the minimum cost?

A. Define the variables.

B. Write a system of inequalities.

C. Write a function.

D. Graph the system of inequalities



E. Substitute the values. (vertices)

F. Answer the problem.

For #8:

Given:

$$A = \begin{bmatrix} 5 & 4 \\ -1 & -2 \end{bmatrix} \quad B = \begin{bmatrix} -1 & -2 \\ 5 & 4 \end{bmatrix}$$

a. $A + B$

b. $B - 3A$

11. Find $\begin{vmatrix} 3 & 1 & 2 \\ -2 & 0 & 4 \\ 3 & 5 & 2 \end{vmatrix}$

12. Find y using Cramer's Rule.

$$\begin{aligned} 2x + 4y - 2z &= 9 \\ 4x - 6y + 2z &= -9 \\ x - y + 3z &= -4 \end{aligned}$$

9. Find the product.

$$\begin{bmatrix} -4 & 3 & 1 \\ 0 & -2 & 6 \end{bmatrix} \begin{bmatrix} 5 & -7 \\ 0 & -1 \\ 1 & 3 \end{bmatrix}$$

10. Solve for x and y .

$$\begin{bmatrix} 2y \\ x + 1 \end{bmatrix} = \begin{bmatrix} 2x + 8 \\ 3y - 1 \end{bmatrix}$$