Pre Calculus
Study Guide: Chapter 2

1. Solve using substitution.

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

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

2. Solve using elimination.

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

3. Find the product.

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

4. Solve algebraically.

5. 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 #6:

Given:

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

a. A + B

b. B − 3A

7. Solve for x and y that will make the matrix equation true.

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

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

12. Find y using Cramer's Rule.

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

13. Solve the system of equations using the graphing calculator (row reduction)

$$326x - y = -200$$
$$y = 226x + 1600$$

14. Find the determinant using the graphing calculator.

$$\begin{vmatrix} -3 & 5 & 3 & -6 \\ 13 & 0 & -22 & 4 \\ -9 & 2 & 0 & -1 \\ 31 & -5 & -7 & 0 \end{vmatrix}$$

15. Solve the system of equation using row reduction.

$$-3y = -1 - 2x$$
$$5x - 12y = 2$$

16. Describe the slopes and y-intercepts and the number of solutions of the following types of systems of equations:

a) Consistent, Dependent
b) Consistent, Independent
c) Inconsistent