Alg2 Chapter 3 Review

1. Graph the system of constraints. Name all of the vertices. Then find the maximum value of the given objective function.

$$\begin{cases} x + y \geq 6 \\ 2x + y \leq 10 \\ x \geq 0 \\ y \geq 0 \end{cases}$$

Maximum for $4x + y$

Solve the system of inequalities by graphing.

2. $\begin{cases} y \leq -4x - 2 \\ y > 2x - 3 \end{cases}$

3. $\begin{cases} x < -4 \\ y \leq -2 \end{cases}$

4. $\begin{cases} y \geq -3x - 2 \\ y \leq \dfrac{1}{4}x - 2 \end{cases}$

Use the elimination method to solve the system.

5. $\begin{cases} -2x + 2y = 4 \\ 5x - 2y = -4 \end{cases}$

6. $\begin{cases} x - 3y = -6 \\ -4x + 12y = 24 \end{cases}$

Solve the system by the method of substitution.

7. $\begin{cases} -3x + y = 1 \\ 5x - y = -5 \end{cases}$

8. $\begin{cases} -3x + y = 7 \\ x - 4y = 16 \end{cases}$

Without graphing, determine if one solution, infinite solutions or no solution. Justify your answer.

9. $\begin{cases} y = 2x + 10 \\ 6x - 3y = -30 \end{cases}$

10. $\begin{cases} -4x + y = 7 \\ y = 4x + 5 \end{cases}$

11. $\begin{cases} -4x - y = 8 \\ 3x - y = -6 \end{cases}$

Solve the system by graphing.

12. $\begin{cases} y = -x - 9 \\ 3x - y = -11 \end{cases}$

13. $\begin{cases} 4x + y - 1 = 0 \\ 12x + 3y = -4 \end{cases}$

14. A baker wants to make bread and cake. A loaf of bread is made with 2 c flour and ¼ c sugar. Cake is made with 4 c flour and 1 c sugar. He will make a profit of $1.50 on each loaf of bread and a profit of $4 on each cake. You have 16 c flour and 3 c sugar. How many of each should you make to maximize the profit? What is the maximum profit?

15. A group of 44 people attended a ball game. There were three times as many children as adults in the group. Set up a system of equations that represents the numbers of adults and children who attended the game and solve the system to find the number of children who were in the group.