# Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *Math 3 – Unit 1 Review*

***1. Without solving the systems, determine the number of possible solutions***.

1. b) c)

***2. Solve these equations by graphing.***

y

x

8

8

-8

-8

y

x

8

8

-8

-8

a. b.

***Solve these equations by substitution or elimination. Show work on your paper.***

3. **Solve by substitution:** 4. **Solve by elimination:**

***Solve each of the following systems of equations in any manner:***

5. 6. 7.

8. 9. 10.

***Solve the following problems.***

11. Student Council is having a fair fundraiser. Tickets to the fair are $3 for children and $4.50 for adults. The school sells 250 tickets and raises $975. Find the number of children who attended the fair.

12. In the school cafeteria, Rolly and his sister Dolly go through the line and buy sandwiches and soup for lunch. Rolly buys two sandwiches and one soup and spends $2.75. Dolly buys three sandwiches and two soups and spends $4.75. Find the price of each item.

13. Joann divides $17,000 into three investments: a savings account paying 6%annual interest, a bond paying 9%, and a money market fund paying 11%. The annual interest from the three accounts is $1540, and she has three times as much invested in the bond as in the savings account. What amount does she have invested in each amount?

14. A cashier has 25 coins consisting of nickels, dimes, and quarters with a value of $4.90. If the number of dimes is 1 less than twice the number of nickels, how many of each type of coin does she have?

***Graph the following systems of inequalities.***

15. 16. 17.

**Write the constraints for the following linear programming problem:**

18. The area of a parking lot is 600 square meters. A car requires 6 square meters. A bus requires 30 square meters. The attendant can handle only 60 vehicles. If a car is charged $2.50 and a bus $7.50, how many of each should be accepted to maximize income?

19. Baking a tray of corn muffins takes 4 cups of milk and 3 cups of flour. A tray of bran muffins takes 2 cups of milk and 3 cups of flour. A baker has 16 cups of milk and 15 cups of flour. He makes $3 profit per tray of corn muffins and $2 profit per tray of bran muffins. How many trays of each type of muffin should the baker make to maximize his profit?

y

x

10

10

0

0

Let x = the number of trays of bran muffins

Let y = the number of trays of corn muffins

 Constraints:

Objective Function:

Solution:

20. A ski company makes two types of skis and has a fabrication and a finishing department. A pair of downhill skis requires 6 hours to fabricate and 1 hour to finish. A pair of cross-country skis requires 4 hours to fabricate and 1 hour to finish. The fabricating department has 108 hours of labor available per day. The finishing department has 24 hours of labor available per day. The company makes a profit of $40 on each pair of downhill skis and $30 on each pair of cross-country skis. How many of each type should the manufacturer produce to maximize the profit? What is the max profit?

Variables:

Constraints:

Objective Function:

Solution: