Name: _____ Class: _____ Date: _____ ID: A

Lesson #3-2: Understanding and Solving Systems of Three Equations with Three Variables (Reference: Lesson #29 in book)

Problem

1. **For each of the following systems of three equations, please solve the system of equations, state your solution as a three dimensional coordinate point, and determine the classification (Consistent or Inconsistent) of the system of equations.(SHOW ALL OF YOUR WORK.)**

1. $-x-5y+z=17$

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

   $2x+5y-3z=-10$

2. $3x-5y+2z=10$

   $x+y-4z=9$

   $2x+2y-8z=1$

3. $-5x+3y+6z=4$

   $-3x+y+5z=-5$

   $-4x+2y+z=13$

4. $4x+8y-2z=16$

   $3x+15y+3z=0$

   $6x+12y-3z=24$

5. $-12x-4y-2z=-34$

   $10x+2y-12z=38$

   $-4x-6y-6z=-20$

6. $3x-3y-6z=9$

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

   $5x-5y+10z=15$

7. $12x+18y+20z=30$

   $-6x-9y-10z=4$

   $-24x-36y-40z=-15$

8. $6x - y + 3z = -9$

   $5x + 5y - 5z = 20$

   $6x - 2y + 8z = -10$

9. **For each of the following application word problems, please create three equations from the given information and then solve the system of three equations. (SHOW ALL OF YOUR WORK.)**

   9. Five hundred tickets were sold for a certain music concert. The tickets for adults sold for $7.50, the tickets for children sold for $4.00, and tickets for senior citizens sold for $3.50. The revenue for the Monday performance was $3,025. Twice as many adult tickets were sold as children tickets. How many of each type of ticket were sold for Mondays performance?

10. A person invests $5,400 for one year; some is invested at 12%, some at 15%, and the remainder at 18% interest. The combined interest earned at the end of the year from the investments was $822. The amount invested at 12% is $2,600 less than the amounts invested at 15% and 18% combined. What is the amount of money invested at each rate?