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

Lesson # 16 A: Understanding and Solving Systems of Equations-Applications of Linear Systemts of Equations (Reference: Lesson #55, #59 & #63 in book)

Problem

1. **For each of the following application word problems, please create two equations from the given information and then solve the system of equations using the method of your choice. (SHOW ALL OF YOUR WORK.)**

   1. A school play charged adults $16 and students $10 for tickets. There were 75 people who attended the play. The box office collected $888. How many adults and how many students attended the play?

2. The goal of the school play (from the above question) was to make $500 and to sell twice as many student tickets as adult tickets. How many adults tickets would need to be sold? (Use the information from questions 1 and 2 to setup your equations.) (Round to nearest whole number when needed.)

3. A museum sells 280 tickets in one day for a special exhibit. A regular ticket costs $20 and a student ticket costs $14.50. How many student tickets did the museum sell if it made $4,918.

4. A motel clerk counts his $1 and $10 bills at the end of a day. He finds that he has a total of 74 bills having combined monetary value of $326. Find the number of bills of each denomination that he has.

5. The two top-grossing North American concert tours in 2007 were The Police and Van Halen. Based on the average ticket prices for these tours, it cost a total of $1217 to buy six tickets for The Police and five tickets to a Van Halen concert. Three tickets for The Police and four tickets for Van Halen cost a total of $781. How much did an average ticket cost for each tour?

6. Margie is responsible for buying a weeks supply of food and medication for the dogs and cats at a local shelter. The food and medication for each dog costs twice as much as those supplies for a cat. She needs to feed 164 cats and 24 dogs. Her budget is $4,240. How much can Margie spend on each dog and cat for food and medication?

7. The state fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 8 vans and 8 buses with 240 students. High School B rented and filled 4 vans and 1 bus with 54 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

8. An investor buys a total of 360 shares of two stocks. The price of one stock is $35 per share, while the price of the other stock is $45 per share. The investor spends a total of $15000. How many shares of each stock did the investor buy?