**6.4 Applications of Systems Homework** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math 1 Spring 2014

**Directions:** Assign two variables for each problem, and write the equations. **Do not solve.**

1. A pair of boots and a pair of tennis shoes cost $196.12. The difference in their cost is $44.38. Determine the cost of each type of footwear.

**Set Up: Equations:**

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Two different types of batteries are needed to run Joshua’s remote-controlled jeep. The two batteries produce a total voltage of 6.5 V. The difference in their voltage is 2.5 V. Determine the voltages of the two batteries.

**Set Up: Equations:**

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. In the Alice High School band, the number of trumpet players is 4 times the number of French horn players. There are 35 trumpet and French horn players in the band. How many people play the trumpet?

**Set Up: Equations:**

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Jason, a vendor at the Minute Maid Park in Houston, sells two sizes of drinks. One costs $1.00 and the other costs $1.50. He knows he sold a total of 230 drinks for a total of $285.00. How many small drinks did he sell?

**Set Up: Equations:**

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A cruise ship has 680 rooms. Those with a view rent for $160 per night, and those without a view rent for $105 per night. One a night when the ship was completely occupied, revenues were $92,500. How many rooms of each type are on the ship?

**Set Up: Equations:**

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Let \_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Directions:** Assign two variables for each problem, and write the equations. **Solve.**

1. A farm has chickens and cows. You ask the farmer how many chickens he has, and how many cows he has. The farmer tells you he has 28 healthy animals, and they have a total of 64 legs. How many of his animals are cows?
2. Andrew has a collection of soda bottles. Some of them are 12-ounce bottles, and others are 16-ounce bottles. If the collection contains 20 bottles which hold a combined 300 ounces, how many of the soda bottles are 12-ounce bottles?
3. Jack and Cameron are playing a game of paper football. By their rules, you can score a 5-point touchdown or a 7-point touchdown. In the game, there have been 13 touchdowns scored for a total of 71 points. How many of these touchdowns were 7-point touchdowns?
4. Abbi has $400 in $5 bills and $20 bills. If she has 38 bills, how many of them are $20 bills?
5. This year, Jake is 5 years older than his sister. Three years ago, Jake was twice his sister’s age. How old is Jake’s sister now?
6. A test contains 35 questions worth a total of 100 points. There are seven-point questions and two-point questions. How many two-point questions are there? How many seven-point questions?
7. In a parking lot there are motorcycles and cars. You count 98 wheels, and your friend counts 30 vehicles. How many cars are there? How many motorcycles?