

Algebra II Worksheet #6 Unit 2 page 1 _____

Solve each of the problems algebraically. Use a system of 2 equations with 2 variables.

1. A piece of pipe that is 20 feet long is to be cut into two pieces so that the length of the longer piece is one foot more than twice the length of the shorter piece. How long is each piece? Express your answers using feet and inches.

2. A collection of 50 ordinary nickels and dimes is worth a total of \$3.40. How many coins of each type are in the collection?

3. Three hot dogs and five hamburgers cost a total of \$6.70. Seven hot dogs and three hamburgers cost a total of \$7.40. What is the cost of one hot dog? What is the cost of one hamburger?

Algebra II Worksheet #6 Unit 2 page 2

Solve each of the problems algebraically. Use a system of 2 equations with 2 variables.

4. One solution is 35% acid while another is only 20% acid. How much of each solution should be used to make 300 ml of a solution that is 30% acid?

5. Sam's electric bill is based on a fixed monthly charge plus a charge per kilowatt-hour (kWh) of electricity used. During one month Sam used 550 kWh of electricity and his total bill was \$74.50. For another month Sam used 460 kWh of electricity and his total bill was \$66.40. What is the fixed monthly charge? What is the charge per kWh?

6. A resort hotel has 200 rooms. Those with kitchen facilities rent for \$100 per night. Those without kitchen facilities rent for \$80 per night. On a night when the hotel was full (every room was rented) the total revenue was \$17,000. How many rooms of each type does the hotel have?

Algebra II Worksheet #6 Unit 2 page 3

Solve each of the problems algebraically. Use a system of 2 equations with 2 variables.

7. Henry invested \$20,000, part at 8% per year and the remainder at 5% per year. If the total interest for one year was \$1495, then how much was invested at each rate?

8. Coffee worth 90¢ per pound is mixed with coffee worth 75¢ per pound to produce 20 pounds of a mixture that is worth 81¢ per pound. How much of each type of coffee is used in the mixture?

9. Jane can row 33 miles downstream in 5 hours. The return trip took 8 hours. Find Jane's rowing rate (still water) and the speed of the current (assuming both were constant). Round your answers to the nearest tenth.