Medical Ratios Assignment Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MATH A104

1. Quinidine gluconate is a liquid mixture, part medicine and part water, which is administered intravenously. There are 80 mg of quinidine gluconate in each cubic centimeter (cc) of the liquid mixture. Dr. Nassat orders 500 mg of quinidine gluconate to be administered daily to a patient with malaria. How much of the solution would have to be administered in order to achieve the recommended daily dosage?
2. Albuterol is a medication used for the treatment of asthma. It comes in an inhaler that contains 17 mg of albuterol mixed with a liquid. One actuation (inhalation) from the mouthpiece delivers a 90-µg dose of albuterol.
   1. Dr. Martinez orders 2 inhalations 4 times per day. How many micrograms of albuterol does the patient inhale per day?
   2. How many actuations/inhalations are contained in one inhaler?
   3. Delia is going away for 4 months and wants to take enough albuterol to last for that time. Her physician has prescribed 2 inhalations 4 times per day. Estimate how many inhalers Delia will need to take with her for the 4-month period.
3. Amoxicillin is a common antibiotic prescribed for children. It is a liquid suspension composed of part amoxicillin and part water. In one formulation of amoxicillin suspension, there are 250 mg of amoxicillin in 5 cc of the liquid suspension. Dr. Scarlotti prescribes 400 mg per day for a 2-year old child with an ear infection. How much of the amoxicillin liquid suspension would the child’s parent need to administer in order to achieve the recommended daily dosage of amoxicillin?
4. Diphenhydramine HCL is an antihistamine available in liquid form, part medication and part water. One formulation contains 16 mg of medication in 5 mL of liquid. An allergist orders 40-mg doses for a high school student. How many milliliters should be in each dose?
5. How many grams of sodium hydroxide are required to prepare 750 ml of a 5.0% solution? We’ll assume that the sodium hydroxide dissolves in the solution and does not contribute to the overall volume.
6. You are asked to do a 1/3 dilution using 1.5mL of serum. How much diluent do you need to use?
7. A clinical laboratory technician determines that a MINIMUM of 75 mL of working reagent is needed for a procedure. To prepare a 1/4 dilution of reagent from a stock solution, one should measure 75mL of the reagent and \_\_\_\_\_ mL of the diluent.
8. A patient's glucose result is outside of the linear range of the analyzer; 50 microliters of serum is added to 100 microliters of diluent and the diluted sample is re-analyzed. The glucose value of the diluted sample is 80 mg/dL. What is glucose value in the original sample?
9. A thyroid peroxidase antibody test was performed on a 45 year-old man. The dilution sequence was 25 microliters of serum to 100 microliters of diluent in tube 1. Then 25 microliters from tube 1 was added to 25 microliters of diluent in tube 2. Then 25 microliters from tube 2 was added to 50 microliters of diluent in tube 3. What is the dilution factor of tube 3?