Math 29
In-class Problems on Concentrations

1. I bought a 8 ounce Starbucks latte which is 26% espresso and the rest milk. I like my latte to be 78% milk. In order to mix a 6 ounce latte exactly to my taste how many ounces of the Starbucks mixture and how much milk should I use?

2. My husband made $\frac{1}{2}$ gallon of orange juice by mixing two containers of water with one container of frozen juice concentrate. I like orange juice that is precisely 19% juice concentrate and 81% water. How many ounces of my husband's mixture and how much water should I use to create one cup of juice that I will like? (Note: 1 gallon is 128 ounces and 1 cup is 8 ounces.)

3. You have a solution of NaOH at a concentration of 6.3 mole per liter (a mole is 6.02×10^{23} molecules). You want to prepare 525 cm^3 of a solution of NaOH at a concentration of 2.3 moles per liter. How many milliliters of solution and how much water should you use? (Note 1 liter is 10^3 cm^3).

4. A chemist has a 42% solution and a 12% solution of hydrochloric acid. How much of each solution should be used to make 3 liters of a 28% solution?