**Problem Set 2**

Calculate the percent of sodium carbonate in a 0.7201 gram sample that you just finished in lab it required 32.48 mL of 0.1211 Molar HCl to reach the endpoint. Then what would be the percent of Carbonate?

Your boss ask you to prepare 500 mL of a 0.2105 Molar Sodium Hydroxide solution from a stock solution that was 58.7% sodium hydroxide to accomplish this you weighed one mL of stock solution and found that it weighed 1.5801 grams. How many mL of stock solution would be needed to prepare the requested solution.

124.5 milligrams of Magnesium Sulfate is mixed with 231.2 milligrams of Barium Nitrate. What and how much precipitate would be formed? Approximately how many ppm of Magnesium and Barium would then remain in solution if the total volume is 1.000 liter (assume at this junction in the class that precipitate(s) are totally insoluble)

Patients were dosed with an antibiotic, azithromycin. Blood samples were extracted at different time intervals and the concentration of the azithromycin was measured using HPLC. Two hours after dosing the concentration of the antibiotic was determined and then at six hours it was determined again. Data is shown in the below Table. Can we say at the 95% confidence level that there was a statistical difference in elimination of the antibiotic from those patients over 4 hours between two blood drawings; that is between the two groups? Don't worry much here about sig figs but always be reasonable.

|  |
| --- |
| Concentration of Azithromycin (ppm) |
| 2 hours | 6 hours |
| 541 | 529 |
| 551 | 509 |
| 531 | 549 |
| 541 | 559 |
| 544 | 499 |
| 521 | 529 |
| 538 | 529 |
| 541 | 530 |
| 531 | 528 |
| 551 | 529 |
| 541 | 530 |
| 561 | 528 |

If one increased and/or decreased the number of patients by two patients, assuming as an approximation that the mean and standard deviation remain the same. Would this influence the significance and illustrate how by numeric calculation to support?

25.4 milligrams of Aluminum Sulfate is dissolved insufficient volume to fill a 500 mL Volumetric to the mark. What would be the concentration of Aluminum in **ppm and mM?**