Name: _____

Date: _____

Chemistry

Concentration of Solutions WS 3 (Dilutions)

I. *Perform the following concentration calculations, showing all work and circling your answers:*

1. How much stock solution would you need to prepare 60.0 mL of 0.200 M HCl from a stock solution of 4.00 M HCl?

2. How much nitric acid would you need to prepare 500. mL of 1.75 M HNO_3 solution from an 8.61 M stock solution of HNO_3?

3. You have 505 mL of a 0.125 M HCl solution and you want to dilute it to exactly 0.100 M. How much water should you add?

4. 275 mL of a 3.0 M HCl solution is diluted to have a final volume of 775 mL. What is the final concentration?

5. You have a 0.5 M NaOH stock solution. For an experiment, you need 0.08 M NaOH. How would you prepare 125 mL of this lower concentration?

6. What would be the final volume when 25.0 mL of a 0.680 M solution is diluted to 0.15 M?

7. If you want to make 300. mL of 3.5 M HCl, how much 6.0 M HCl would you need to dilute in water in order to make this lower concentration?

8. 64 g of NaOH are dissolved in 175 mL of solution. What is its concentration? If this solution is then diluted with 200 additional mL H_2O, what is its final concentration?

9. How much water do you have to add to 15 mL of 4.5 M K_2SO_4 solution in order to dilute it to 0.805 M?

10. A 6.0 M sodium nitrate stock solution is diluted to form 550. mL of 1.5 M solution. How much stock solution is needed to form the dilute solution?

11. After diluting 160. mL of an unknown acid to a final volume of 500. mL, its final concentration is found to be 0.398 M. What was the original concentration of the acid?

12. 37.03 g of acetic acid are dissolved in 800. mL of water. What is the concentration of this solution? If 350. mL of water is added to the solution, what will be its new concentration?