Molarity Worksheet

*Complete on lined paper. Show **all** your work and watch your significant figures!*

1) Calculate the molar concentration of the following solutions:

a. 2.8 moles of HNO_3 in 4.0 L of solution
b. 0.0700 moles of NH_4Cl in 50.0 L of solution
c. 25.0 grams of NaCl in 250.0 mL of solution
d. 10.0 grams of $Cr(NO_3)_3 \bullet 9H2O$ in 325 mL of solution

2) How many grams of the substance would be used to prepare the following solutions?

a. 1.00 L of 3.00 M NH_4Cl
b. 125 mL of 0.500 M $Ba(NO_3)_2$
c. 250.0 mL of 0.100 M $SbCl_3$
d. 2.75 L of 0.0120 M NaOH

3) How many moles of $AlCl_3$ are contained in 350.0 mL of 0.250 M $AlCl_3$?

4) What volume of 2.40 M HCl can be made from 100.0 g of HCl?

5) How many moles of $Sr(NO_3)_2$ are contained in 55.0 mL of 1.30×10^{-3} M $Sr(NO_3)_2$?

6) What volume of 2.8×10^{-2} M NaF contains 0.15 g of NaF?

7) The density of water at 4°C is 1.000 kg/L. What is the molar concentration of H_2O in pure water at 4°C? (Hint: how many moles of H_2O are contained in 1L)

8) The density of acetic acid, CH_3COOH is 1049 g/L. What is the molarity of pure acetic acid?

9) The molar concentration of pure $HClO_4$ is 17.6 M. What is the density of pure $HClO_4$?

10) How many grams of $CaCl_2$ are contained in 225 mL of 0.0350 M $CaCl_2$ solution?