**Use the definition of molarity, (M = moles solute/L solution) to solve the following problems. Be sure to watch your units and convert to L or moles when necessary.**

1. 0.54 moles of potassium fluoride (KF) is dissolved to make 0.10 L of solution. Calculate the molarity of the KF solution.
2. 952 grams of ammonium carbonate, (NH4)2CO3, are dissolved to make 1750 mL of solution. Calculate the molarity of this solution.
3. 9.82 grams of lead (IV) nitrate, Pb(NO3)4, is dissolved to make 465 mL of solution. What is the molarity of this solution?
4. 45 grams of glucose, C6H12O6, is dissolved in water to create 200 mL of solution. Calculate the Molarity of this solution.
5. How many grams of HNO3 are needed to generate 120 mL of 1.17 M solution?

**Use the dilution equation, (M1V1=M2V2) to calculate the molarity or resulting molarity of the following solutions. Be sure to watch your units and convert to L or moles when necessary.**

1. A dilution of 250 mL of 2.35 M HF is prepared from a stock solution of 15.0 M. How many mL of the original stock are required to make the new solution?
2. If 65.5 mL of HCl stock solution is used to make 450 mL of a 0.675 M HCl dilution, what is the molarity of the stock solution?
3. If 455 mL of 6.0 M HNO3 is used to make a 2.5 L dilution, what is the molarity of the dilution?
4. A chemist wants to prepare 500 mL of a 1.77 M H2SO4 dilution from an 18.0 M H2SO4 stock solution. How much of the stock solution does she need?
5. Using the solution created in question 5, what volume does the solution need to be diluted to in order to reach a concentration of 0.5 M?