Name: _____
Per:___ Date: _____

Solution Stoichiometry-Utilizing Molarity

For each problem below, write the equation and show your work. Always use units and box in your final answer.

1. What mass of NaCl is required to precipitate all the silver ions from 20.0 mL of 0.100 *M* $AgNO_3$ solution?

2. a. What volume of 0.115 *M* $HClO_4$ solution is required to neutralize 50.00 mL of 0.0875 *M* NaOH?

   b. What volume of 0.128 *M* HCl is required to neutralize 2.87 g of $Mg(OH)_2$?

   c. If 25.8 mL of $AgNO_3$ is required to precipitate all the Cl^{1-} ions in a 785 mg sample of KCl (forming AgCl), what is the molarity of the $AgNO_3$ solution?

   d. If 45.3 mL of 0.108 *M* HCl solution is required to neutralize a solution of KOH, how many grams of KOH must be present in the solution?

3. Some sulfuric acid is spilled on a lab bench. It can be neutralized by sprinkling sodium bicarbonate on it and then mopping up the resultant solution. The sodium bicarbonate reacts with sulfuric acid as follows:

$$2\ NaHCO_{3\,(s)} + H_2SO_{4\,(aq)} \rightarrow Na_2SO_{4\,(aq)} + 2\ H_2O_{\,(l)} + 2\ CO_{2\,(g)}$$

   Sodium bicarbonate is added until the fizzing due to the formation of CO_2 (g) stops. If 35 mL of 6.0 *M* H_2SO_4 was spilled, what was the minimum mass of $NaHCO_3$ that must have been added to the spill to neutralize the acid?