1. How many mL of 0.850 M HCl are needed to reach the equivalence point with 250. mL of 0.400 M NaOH according to the following balanced reaction. (Answer: 118 mL)

 $HCl + NaOH \rightarrow NaCl + H_2O$ 

2. 20.0 mL of 2.00 M H<sub>2</sub>SO<sub>4</sub> was placed into a beaker and mixed with 50.0 mL of KOH. What must the molarity of the KOH be to reach equivalence? (Answer: 1.60 M)

 $H_2SO_4 + 2KOH --> K_2SO_4 + 2H_2O$ 

3. How many liters of  $0.450 \text{ M Ca}(OH)_2$  solution are needed to titrate 1.50 L of  $0.100 \text{ M HNO}_3$  according to the following balanced reaction? (Answer: 0.167 L)

 $2HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + 2H_2O$ 

4. What's the concentration of HBr when 15.0 mL are needed to reach the equivalence point with 150. mL of 0.600 M KOH according to the following balanced reaction. (6.00 M)

 $HBr + KOH \longrightarrow KBr + H_2O$