AP Chemistry Ch. 17 Titration Practice Problems

1) a) Some KNO3 is added to a solution of HNO3. Will this cause the pH to increase, decrease, or stay the same? Explain your choice.

b) Some NaHCO3 is added to a solution of HF. Will this cause the pH to increase, decrease, or stay the same? Explain your choice.

c) Some NH4Cl is added to a solution of NH3. Will this cause the pH to increase, decrease, or stay the same?

Explain your choice.

d) Some NH3 is added to a solution of HNO2. Will this cause the pH to increase, decrease, or stay the same?

Explain your choice.

2) Calculate the pH when 40.0 mL of 0.150 M NaOH is added to 35.0 mL of 0.250 M HCl.

3) What is the pH of a solution when 40.0 mL of 0.150 M NaOH is added to 35.0 mL of 0.250 M HNO2.

4) What volume of 0.350 M HCl is necessary to neutralize 100.0 mL of 0.150 M Ca(OH)2?

5) A 50.0 mL solution of 0.125 M HC2H3O2, (Ka =1.8 x 10-5), is titrated with an excess of 0.125 M of NaOH.

1. Calculate the pH of the solution at the ½ equivalence point.
2. What volume of base is needed to reach the equivalence point?
3. i. Is the pH at the equivalence point greater than, less than or equal to 7? Justify your answer with the

 appropriate chemical reaction that is happening.

ii. Calculate the pH of the solution at the equivalence point.