Titrations Practice

1. Make a sketch of the following scenario: a solution of 0.100 M NaOH is the titrant added from a burette. 25.0 mL of a solution of 0.100 M HCl is the analyte in a flask below the burette.

2. Write the chemical equation for the resulting reaction.

3. What is the pH of the HCl solution before any NaOH is added?

4. After 6 mL of 0.1 M NaOH is added to the flask,

    (a) What is the limiting reactant?

    (b) How many moles of the excess reactant remains in the flask?

    (c) Calculate the new pH.

5. Write the definition of the equivalence point.

    (a) Without calculation identify the volume of NaOH required to reach the equivalence point. (Note: What makes this *shortcut* possible?)

    (b) Identify the species present in solution at the equivalence point.

(c) Do you expect the solution to be acidic, basic, or neutral at the equivalence point? (Hint: Don't forget about *potential* acids and bases.)

6. If you were to continue adding base beyond the equivalence point what would happen to the pH?

   (a) Consider the addition of 5 mL of NaOH after the equivalence point.

   (b) Consider the addition of an infinite amount of base.

7. Sketch a graph of the corresponding pH vs Volume curve on the axes below.