TITRATION BETWEEN A WEAK ACID AND A STRONG BASE

NAME _____ SECTION _____

1. a. Qualitatively, describe how the pH of a solution of a weak acid changes when a solution of strong base is added to it.

   b. A titration is performed by adding 0.200 M NaOH to 24 mL of 0.350 M HOCl.

      i. Calculate the pH before addition of any NaOH.

      ii. Calculate the pH after the addition of 5.0 mL of the base.

Calculate the pH after the addition of 15.0 mL of the base.

Calculate the pH after the addition of 25.0 mL of the base.

Calculate the pH after the addition of 35.0 mL of the base.

Calculate the pH after the addition of 40.0 mL of the base.

iii. Calculate the volume of base needed to reach the equivalence point.

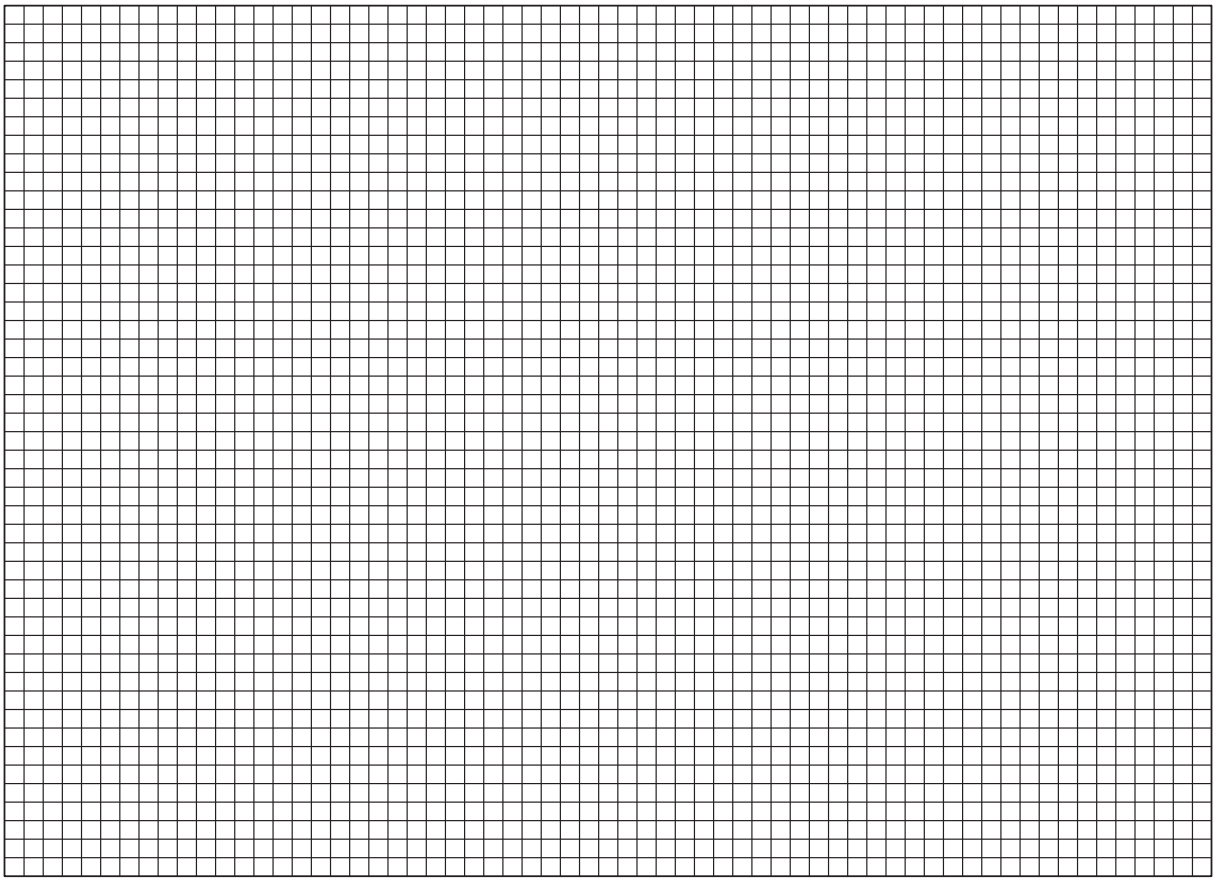
iv. What is the pH at the equivalence point?

v. Calculate the pH after adding 5.00 mL of NaOH past the equivalence point.

2. Using the designated space below, draw the titration curve for each of the following cases.

   a. 50.0 mL of 1.00 M NaOH is added to 50.0 mL of 1.00 M $HC_2H_3O_2$.

   b. 50.0 mL of 0.0100 M NaOH is added to 50.0 mL of 0.0100 M $HC_2H_3O_2$.



   c. Describe similarities and differences of the two curves.