CH 223 Spring 2025:
"Titration of Weak Acids
*(online)" **Lab** - Instructions*

Note: **This is the lab for section W1 of CH 223 only.**

- *If you are taking section 01 or section H1 of CH 223*, please use this link:
  http://mhchem.org/q/6a.htm

Step One:

Watch the lab video for the "Weak Acids" lab, found here:
http://mhchem.org/v/h.htm
Record the data found at the ***end*** of the lab video on page Ib-6-3.

Step Two:

Complete pages Ib-6-3 through Ib-6-4 using the "Weak Acids" video. Include your name on page Ib-6-3!

Step Three:

Submit your lab (pages Ib-6-3 through Ib-6-4 *only* to avoid a point penalty**) as a *single* PDF file to the instructor via email (mike.russell@mhcc.edu) on Wednesday, May 7 by 11:59 PM.** I recommend a free program (ex: CamScanner, https://camscanner.com) or a website (ex: CombinePDF, https://combinepdf.com) to convert your work to a PDF file.

If you have any questions regarding this assignment, please email (mike.russell@mhcc.edu) the instructor! Good luck on this assignment!

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Titration of Weak Acids **Name:**

Complete the following questions. All work must be shown to receive full credit.

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1. *Obtain from the video*

   Collect the following data from the "Titration of a Weak Acid" video (**http://mhchem.org/v/h.htm**)

   [NaOH] (M): _____

   [NaOH] (M): _____

   Sample #1

   Sample #2

   Unknown sample (g): _____

   Unknown sample (g): _____

   Equivalence volume (mL): _____

   Equivalence volume (mL): _____

   Half-equivalence volume (mL): _____

   Half-equivalence volume (mL): _____

   Equivalence pH: _____

   Equivalence pH: _____

   Half-equivalence pH: _____

   Half-equivalence pH: _____

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2. *Lab Calculations: show all calculations on separate paper; include with your lab report*

   mol unknown acid at equivalence: _____

   mol unknown acid at equivalence: _____

   molar mass unknown (g/mol): _____

   molar mass unknown (g/mol): _____

   K_a unknown acid: _____

   K_a unknown acid: _____

   Average K_a: _____

   Parts per thousand (K_a): _____

   Average molar mass (g/mol): _____

   Parts per thousand (molar mass): _____

3. Postlab question: *(Show all work after the problem)*

   0.4998 g an unknown acid was placed in 75.00 mL of water.
   The unknown acid required 16.44 mL of 0.2001 M NaOH to reach equivalence.
   The pH at half equivalence was 3.86

K_a: _____ **Molar mass of unknown (g/mol)**: _____

Volume NaOH to reach Half-equivalence (mL): _____

Concentration of Unknown acid in original solution (M): _____