

Spreadsheet Problem Set #2

Chem M3LC - Fall 2016.

Question 1 – Weak Acid Salt titration

You want to determine the pH of a solution that contains an unknown amount of a weak acid salt before you begin titrating. Using iterative equations similar to the one derived in class:

- List the two iterative equations needed to solve this problem.
- Create a spreadsheet and give the best answer to the question, “What is the pH?”.

Hint: the class website has a handout that will help you determine the iterative equation you need.

Question 2

H_2Z is a diprotic acid with a $\text{pK}_1 = 3.25$ and a $\text{pK}_2 = 6.80$.

You wish to titrate 50.00 mL of a 0.100M H_2Z solution with a 0.100M NaOH solution.

What is the pH during the titration after the addition of X mL of 0.100M NaOH solution where X is:

- 25.0 mL
- 50.0 mL (HINT: this is called the first equivalence point)
- 75.0 mL
- 100.0 mL (HINT: this is called the second equivalence point)
- 125.0 mL