

# Titration Plot for L<sup>A</sup>T<sub>E</sub>X Assignment

CMPE185

## Titration Lab Experiment

Titration is a lab procedure that is used to determine the endpoint of a chemical reaction between a reagent (titrant) and an analyte (titrand) based on the displacement of the volume of a liquid. In doing a typical titration, you need a flask and a burette. This process is helpful in finding an unknown concentration of a solution, finding the precise quantity of the reactant in the flask, and, in this case, finding the pH of a solution.

This experiment specifically models an unknown weak acid with a strong base (NaOH). The titration curve will show the pH vs. the volume of NaOH. Once you plot your data, you should see a sharp rise in pH. The middle of this sharp rise is called the **equivalence point** and its corresponding y-value determines the pH. Adding lines that show the x- and y-intercepts will be helpful.

## L<sup>A</sup>T<sub>E</sub>X Tutorial

In your Graph Section, you will need to:

- Create a plot from the raw data that best communicates your results.
- Explain how you included the graph into your tutorial. You can plot the data in any medium (eg. Microsoft Excel, MATLAB or even L<sup>A</sup>T<sub>E</sub>X).
- Include a meaningful caption, explaining the data presented.

## Raw Data

Volume of Base (mL)	pH	Volume of Base (mL)	pH	Volume of Base (mL)	pH
1.00	3.15	11.00	4.31	18.50	7.30
2.00	3.24	11.50	4.39	18.70	7.60
3.00	3.39	12.00	4.47	18.90	8.15
4.00	3.54	13.00	4.60	19.10	9.95
5.00	3.63	14.00	4.75	19.30	10.50
6.00	3.78	15.00	4.90	20.50	10.90
7.00	3.85	16.00	5.20	21.00	11.80
8.00	3.98	16.50	5.40	21.50	12.20
9.00	4.11	17.00	5.60	22.50	12.30
10.00	4.20	17.50	5.95	23.50	12.35
10.50	4.26	18.00	6.60	-	-

### References

- Titration Procedure [Dartmouth]
- Titration Curves [Bridgewater]
- pH Titration Curves
- AP Chemistry: Interpreting Titration Curves on Vimeo