Task 1: Recheck the Concentration of your NaOH Solution

What is the concentration of your NaOH solution today: $\qquad$ Is it similar, much higher, or much lower than last week? Why do you think so?

Task 2: Perform your titrations and then fill out this handy data table.
Standardized NaOH solution used in titrations with unknown acid

|  | Fast | Slow 1 | Slow 2 | Slow 3 <br> (measure pH <br> during this <br> titration!) | Average <br> (use only slow <br> titrations) | Standard <br> Deviation <br> (use only slow <br> titrations) |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Initial burette <br> reading (mL) |  |  |  |  |  |  |
| Final burette <br> reading (mL) |  |  |  |  |  |  |
| Volume Used <br> $(\mathrm{mL})$ |  |  |  |  |  |  |

Using the balanced equation and your data from your slow titrations, calculate the concentration of the acid solution. Show all work.

$$
\mathrm{HCl}_{(\mathrm{aq})}+\mathrm{NaOH}(\mathrm{aq}) \rightarrow \mathrm{NaCl}_{(\mathrm{aq})}+\mathrm{H}_{2} \mathrm{O}_{(\mathrm{l})}
$$

Task 3: Fill in the table and make a Graph of the data

| Volume of NaOH added to Erlenmeyer flask (mL) | pH of solution |
| :--- | :--- |
| 0.00 |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Draw the graph of pH versus Volume NaOH added in the space provided. Make sure to add a title, label the axis with values and units, and write a short figure legend to receive full credit.

## Task 4: Reflect on your work today.

Many students complain about doing titrations because they require attention to detail. What things did you find important to performing a successful titration? Write down one tip that you would give a student to improve their titration technique. (or answer other prompt instructor provides)

