

The burettes have \_\_\_\_\_ M  $\text{HNO}_{3(\text{AQ})}$  at left, and on the right is the base is  $\text{KOH}_{(\text{AQ})}$  - of unknown molarity

Your job is determine the strength of this base. We will titrate two times in a row, starting with different volumes of acid, and do titration math twice, and average our results. We will post the average molarity on the white board.

Get about 3.5 mL of acid into a small beaker, add 2 drops of phenolphthalein to this beaker. In addition, put in two squirts of deionized water, which does NOT affect the number of  $\text{H}^{+1}$  ions in any way. It does give you some extra "swirling" action. Carefully drip in base, until the solution turns PINK.

When it's pink, "back titrate" until clear - ONE DROP at a TIME. Then, once more, put in ONE DROP of base. If the solution turns pink again, you are as close as you can get to neutral, which means it's time to record your volumes. DO NOT RECORD the ENDING value until you are really done.

trial	Starting Acid volume mL	Ending Acid volume mL	mL of HCl used in this trial	Starting Base volume mL	Ending Base volume mL	mL of KOH used in this trial
1						
2						

Determine the molarity of the base for the first trial. Start with a formula!

(5 points)

Average the two molarity calculations. Record this answer on the white board.

5 points) Determine the molarity of the base for the second trial. Start with a formula!

(5 points)

(2 points)

Questions to be done right on this page please. (three points each on this side)

1. If you were to titrate 74.3 mL of 2.25 M  $\text{H}_2\text{SO}_4$  to neutral with exactly 134.5 mL of NaOH, calculate the molarity of the base. Write a formula, and then on the 2nd line, write in the numbers in the proper place.
2. Balance the acid base neutralization reaction between nitric acid and strontium hydroxide.
3. Balance the acid base neutralization reaction between phosphoric acid and beryllium hydroxide.
4. If a solution has a pH of 2.0 and another solution has a pH of 5.0, compare this first solution to the second one.
5. Write the simple chemical equation that shows why  $\text{NH}_3(\text{AQ})$  is a base, write 2 clear sentences that state the obvious important points here (check your notes, use curved arrows too)
6. Put numbers on this simple line chart, going from zero to 14. Add 5 labels on top: strong acid and strong base, weak acid and weak base, and neutral. Add 5 real life examples of solutions on the bottom that correspond to these pH values.

