Name
Date   **Period**

EXPERIMENT 38
ACID-BASE TITRATION

PRELAB QUESTIONS:
1. Define these terms: standard solution, titration, endpoint, neutralization reaction.
2. What color does the indicator phenolphthalein turn in base solutions? What color does it turn in acid solutions?
3. Write a balance equation for the following neutralization reactions:

   a) $HBr + KOH \rightarrow$

   b) $HI + Ca(OH) \rightarrow$

   c) $H_2SO_4 + NaOH \rightarrow$

   d) $H_2SO_4 + Mg(OH)_2 \rightarrow$

4. If 30.0 mL of 0.5 M KOH are needed to neutralize 10.0 mL of HBr of unknown concentration, what is the molarity of the HBr ?

5. What volume of 0.3 M HI is needed to exactly neutralize 50.0 mL of 0.3 M KOH ?

6. What is the molarity of the base if 65.0 mL of 0.1 M H_2SO_4 is neutralized by 35.0 mL of $Ba(OH)_2$ solution ?

7. It took 150.0 mL $Mg(OH)_2$ to neutralize 75.0 mL of H_2SO_3. What is the molarity of the H_2SO_3?

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OBSERVATIONS AND DATA:

DATA TABLE

	Trial 1		Trial 2		Trial 3		Trial 4	
	HCl	NaOH	HCl	NaOH	HCl	NaOH	HCl	NaOH
Initial reading								
Final reading								
Volume used								

CALCULATIONS:
For each trial calculate the molarity of the NaOH solution using the relationship:
$$M_a \times V_a = M_b \times V_b$$
Show all work!

Trial 1

Trial 2

Trial 3

Trial 4

CONCLUSIONS AND QUESTIONS:
1. List possible sources of error in this experiment.
2. How reproducible were the results of the four trials? How did your results compare with those of the other lab groups?
3. How many mL of 0.200 M LiOH are needed to titrate 50.0 mL of 0.500 M H_2SO_4?

Discussion
Conclusion