

Name _____	Lab Partner _____
TA Name _____	Section _____ Date _____

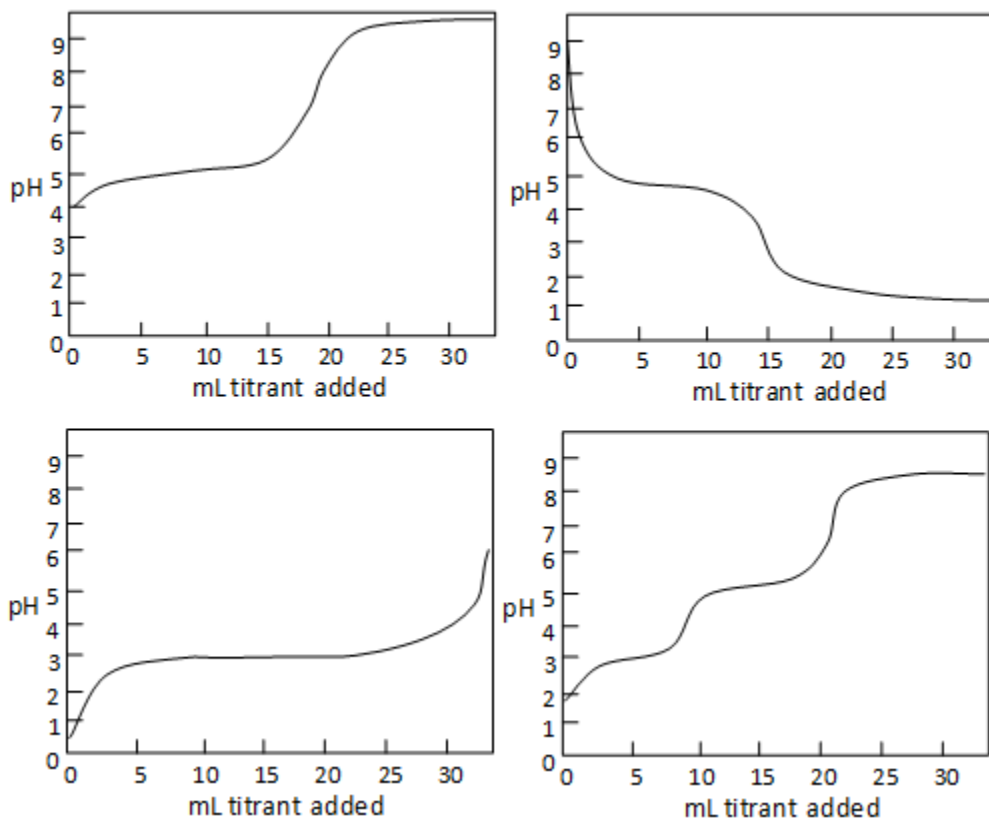
Titrations Worksheet

As you work through the steps in the lab procedures, record your experimental values and the results on this worksheet.

Data Table A1: Experimental Data

	Trial 1	Trial 2
mass of beaker	g	g
volume of vinegar	mL	mL
mass of beaker + vinegar	g	g
mass of vinegar	g	g
concentration of NaOH	M	NA
initial buret reading	mL	mL
equivalence point buret reading	mL	mL
volume of titrant added	mL	mL

Question 1: The titration curve of a weak acid like acetic acid with base has a distinctive appearance when the volume of titrant is plotted on the x -axis and the pH is plotted on the y -axis. Select the picture that most closely resembles this graph.



Question 2: What is the color of the solution at below pH 8? What is the color of the solution above pH 8? Find pH 8.00 on your titration graph. How close is the amount of titrant at pH 8.00 to the Equivalence Point Buret Reading? Within 0.50 mL? Within 1.00 mL?

Question 3: Calculate the number of millimoles of NaOH required to reach the endpoint for each of the three titrations. Show one calculation completely. What is the average? Record the values in Data Table A2.

Question 4: How many millimoles of acetic acid are in each vinegar sample? Show one calculation completely. What is the average? Record the values in Data Table A2.

Question 5: What is the mass of acetic acid in each vinegar sample? Show one calculation completely. What is the average? Record the values in Data Table A2.

Question 6: What is the molarity of acetic acid in each vinegar sample? Show one calculation completely. What is the average? Record the values in Data Table A2.

Question 7: What is the mass % of acetic acid in each vinegar sample? Show one calculation completely. What is the average? Record the values in Data Table A2.

Question 8: Do you prefer monitoring a titration with a pH probe or an indicator? Explain your choice.

Data Table A2: Calculated Results

	Trial 1	Trial 2	Average
mmol of NaOH			
mmol of HC ₂ H ₃ O ₂			
Mass of HC ₂ H ₃ O ₂	g	g	g
molarity of HC ₂ H ₃ O ₂ in vinegar	M	M	M
mass percent of HC ₂ H ₃ O ₂ in vinegar			

Data Table B: Volume of Titrant Added to Vinegar vs. pH

Volume NaOH added (mL)	pH	Observations

Volume NaOH added (mL)	pH	Observations