Experiment VI
Titration Experiment   Date _____

Lab Partners: _____   _____

You will need to perform the NaOH standardization using potassium hydrogen phthalate (KHP) at least twice (molar mass of KHP [abbreviated KHP_{mm}] is 204.215 g/mol). Use about 1.00 g KHP for each analysis. Using these data you will determine the NaOH concentration, your standard solution. You will perform a titration using diluted vinegar (containing acetic acid) three times. (*Report your moles of KHP to 4 significant figures.*) ($mol_{KHP} = mass_{KHP} / KHP_{mm}$)

	Mass	**mol_{KHP}**
KHP #1	_____	_____
KHP #2	_____	_____
KHP #3	_____	_____

Sample	**Start (mL)**	**Finish (mL)**	**Volume (mL)**	**NaOH molarity (*M*)**
_KHP#1___	_____	_____	_____	_____
_KHP #2___	_____	_____	_____	_____
_KHP #3___	_____	_____	_____	_____

Average NaOH molarity (*M*) = _____

Use the table below for the acetic acid titration experiment on the second day.

Sample	**Start (mL)**	**Finish (mL)**	**Vol (mL)**	**# Drops**	**Endpoint Volume[1]**
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

From the KHP results, you can determine the concentration of the sodium hydroxide solution. You will also determine the acetic acid concentration in vinegar (remember the vinegar solution used in the actual experiment is a 10-fold dilution).

NaOH molarity: $mol_{KHP} = M_b V_b$ ***or*** $M_b = mol_{KHP} / V_b$

$M_a V_a = M_b V_b$ ***or*** $M_a = 10 \times (M_b V_b / V_a)$ *the 10 adjusts for the diluted vinegar*

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[1]Endpoint volume is determined from computer analysis of data on third day of lab.