

Ka for acetic acid = 1.78E-05

molarity acetic acid as supplied = 0.7494 M
molarity diluted acetic acid = 5.00E-02 M
initial [H3O+] = 9.43E-04 M
initial pH = 3.03

molarity of NaOH = 0.1038 M
equivalence point volume = 14.44 mL
molarity acetate at equiv. point = 3.37E-02 M
Kb for acetate = 5.62E-10
[OH-] at equiv. point = 4.35E-06 M
pOH at equiv. point = 5.36
pH at equiv. point = 8.64

before equiv. point solution is a buffer of acetic acid and acetate

moles acetate = moles OH- added

moles acetic acid = initial moles acetic acid - moles OH- added

volume of titrant added (mL)	4.00	6.00	8.00	10.00	12.00
moles OH- added =	4.15E-04	6.23E-04	8.30E-04	1.04E-03	1.25E-03
moles acetate =	4.15E-04	6.23E-04	8.30E-04	1.04E-03	1.25E-03
moles acetic acid =	1.08E-03	8.76E-04	6.68E-04	4.61E-04	2.53E-04
pH = pKa - log(mol acetate/mol acetic acid) =	4.33	4.60	4.84	5.10	5.44

after equiv. point pH is controlled by excess NaOH

moles excess OH- = moles titrant added - initial moles acetic acid

volume titrant added (mL)	16.00	18.00	20.00	22.00	24.00
moles excess OH- =	1.62E-04	3.70E-04	5.77E-04	7.85E-04	9.92E-04
[OH-] =	3.52E-03	7.70E-03	1.15E-02	1.51E-02	1.84E-02
pOH =	2.45	2.11	1.94	1.82	1.74
pH =	11.55	11.89	12.06	12.18	12.26

data to plot	V titrant	pH
	0.00	3.03
	4.00	4.33
	6.00	4.60
	8.00	4.84
	10.00	5.10
	12.00	5.44
	14.44	8.64
	16.00	11.55
	18.00	11.89
	20.00	12.06
	22.00	12.18
	24.00	12.26

