Quiz 2
CHEM 311 Fall 2004

Calculate the pH of a solution prepared by transferring 5.00 ml of 10.00 M formic acid to a 500.00 mL volumetric flask and diluting to the mark with de-ionized water.

Ka(formic acid) = $1.8*10^{-4}$

F_{HFor} = (5.00 ml)*(10.00 M)/(500.00 ml) = 0.100 M

Ka = $[For^-][H_3O^+]/[HFor] = x^2/(F_{HFor} - x) = x^2/0.100$

$X = [H_3O^+] = 0.0042426$ M

pH = 2.37 (2 sig figs in $[H_3O^+]$, so 2 sig figs after decimal)

Check Assumptions

$[OH-] = Kw/[H_3O^+] = 2.38*10^{-12}$ M = $[H_3O^+]_{H20}$ <<<<<< $[H_3O^+]$

fraction of dissociation = aHFor = 0.0042426/0.10 = 0.042 = 4.2 %

Assumption are valid!!!!