NAME: **HONORS CHEMISTRY**

SECTION: Weak Acid Equilibria

1. A strong acid exhibits \_\_\_\_\_\_\_% dissociation and has a (large/small) Ka value. A weak acid exhibits \_\_\_\_\_\_\_\_% dissociation and has a (large/small) Ka value.
2. Complete the following equations for acid dissociations. Then, write Ka expressions. (Only 1 H+ ion is transferred)
3. H3BO3(aq) + H2O(l) ⇌

1. HCHO2 (aq) + H2O(l) ⇌
2. Calculate Ka for formic acid, HCHO2, if a .025M solution has a pH of 2.64. Formic acid is a monoprotic acid.
   1. Start with a balanced equation (see Q2 part b)
   2. Write a Ka expression
   3. Find [H+] from pH
   4. Assume [HA] hasn’t changed from the original concentration
   5. Substitute and evaluate
3. An 0.32 M solution of butyric acid (a monoprotic acid) has a pH of 2.66. (For simplicity, represent the formula of butyric acid as HA)
   1. Calculate Ka for butyric acid.
   2. Calculate the percent ionization for this solution. 100\* [H+]/[HA]
4. Calculate the concentration of acetic acid molecules in an acetate buffer with a pH of 4.42 if the concentration of acetate ions is 0.103M, and Ka for acetic acid is 1.74 x 10-5. The equilibrium equation is given below:

HC2H3O2(aq) + H2O(l) ⇌ C2H3O2-(aq) + H3O+(aq)

Answers to selected questions

3. Ka = 2.1 x 10-4

4. Ka = 1.5 x 10-5, 0.69% ionization

5. [HC2H3O] = 0.22 M