AP Chemistry

Weak Acid/Base Equilibrium Constant Expressions

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.
3. H3BO3(aq) + H2O(l) ⇌
4. HF(aq) + H2O(l) ⇌
5. HOCl(aq) + H2O(l) ⇌
6. Complete the following equations for base dissociations. Then, write Kb expressions.
7. NH3(aq) + H2O(l) ⇌

1. C5H5N(aq) + H2O(l) ⇌
2. C6H6NH2(aq) + H2O(l) ⇌

4. A student prepared a 0.0500 M solution of acetic acid, CH3COOH, and measured its pH to be 2.60. Calculate Ka and the percent ionization of acetic acid in this solution. (Working asynchronously today? A worked out solution to this question is included in GC--look at it in presentation mode)

5. Calculate the pH of a 0.25M solution of nicotinic acid (aka niacin), HC6H4O2N. The Ka of nicotinic acid is 1.4 x 10-5.

6. Calculate the pH of a 0.10 M solution of sodium fluoride, NaF (Kb = 1.4 x 10-11). Hint: Pay attention...OH- vs H+ concentrations, pH vs pOH

Answer key:

#4: 1.3 x 10, 5.0% dissociation

#5. pH = 2.72

# 6. pH = 8.08