

Name: _____ Period: _____

K_a and K_b Calculations Worksheet

When a strong acid or base is placed in water, they completely ionize. This means that approximately 100% of the acid or base forms products (or the arrow in the chemical equation points one direction). In the case of a weak acid or base, the substance only partially ionizes. This means equilibrium is established in an aqueous solution of a weak acid or base. Using your understanding of acid/base chemistry, complete the following problems.

1. Write chemical equations which represent the dissociation of each of these acids or bases in aqueous solution. Use a single arrow in the case of a strong acid or base, and a double arrow to represent the equilibrium condition that exists in the solution of a weak acid or base.

a. HCl
b. NaOH
c. H_2SO_4
d. KOH
e. $HC_2H_3O_2$
f. HCN
g. $Cu(OH)_2$
h. NH_4OH

2. Calculate the $[H^+]$ and $[OH^-]$ of a 1.0×10^{-3} M solution of HCl, a strong acid.

3. Calculate the $[OH^-]$ and the $[H^+]$ of a 0.0020 M solution of NaOH, a strong base.