

16 • Acids, Bases and salts

16.6 – 16.7 Polyprotic Acids and Additional Practice Problems

Polyprotic Acid Practice Problem

1. The solubility in pure water at 25° and 0.1 atm pressure is 0.0037 M. The common practice is to assume that all of the dissolved CO₂ is in the form of carbonic acid, H₂CO₃, which is produced by reaction between the CO₂ and H₂O.

$$K_{a1} = 4.3 \times 10^{-7}$$

$$K_{a2} = 5.6 \times 10^{-11}$$

(a) What is the pH of a 0.0037 M solution of H₂CO₃

Initial			
Change			
Equilibrium			

(b) What is the concentration of the CO₃²⁻ ion?

Initial			
Change			
Equilibrium			

Polyprotic Acid Practice Problem #2

2. Calculate the pH and concentration of a 0.020 M solution of oxalic acid, $\text{H}_2\text{C}_2\text{O}_4$.

$$K_{a1} = 5.9 \times 10^{-2}$$

$$K_{a2} = 6.4 \times 10^{-5}$$

Initial			
Change			
Equilibrium			

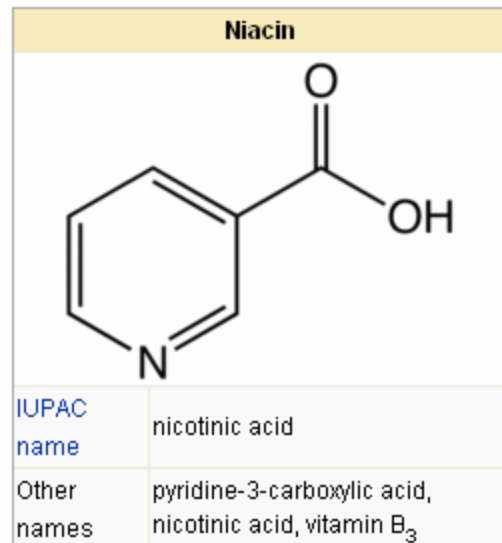
(b) Calculate the concentration of the oxalate ion.

Initial			
Change			
Equilibrium			

Additional Practice Problems

1. A 0.020 M solution of niacin, $\text{HO}_2\text{CC}_5\text{H}_4\text{N}$, has a pH of 3.26.

(a) What percentage of this acid is ionized in this solution?



(b) What is the acid dissociation constant for niacin?

