Weak Acids and pKa

Practice Problems

Write the reactions for the following acids with water. If it is a weak acid, write out the equilibrium expression.

HF + H2O

HCOOH + H2O

NH4+ + H2O

H2S + H2O

What is the pH of a 0.300 M solution of butanoic acid? The pKa for butanoic acid is 4.82.

A 1.00 M solution of lactic acid is 2.94% ionized. What is the Ka for lactic acid?

What is the percent ionization of a 2.00 M pyruvic acid solution? The Ka for pyruvic acid is 2.8 x 10-3.

Multiple Choice

Which of the following is a strong acid?

A) CH3COOH B) HBr C) HNO2 D) H2CO3

The correct equilibrium expression for the dissociation of propanoic acid (C2H5COOH) in water is

A) Ka = [C2H5COOH][H2O]

[C2H5COO-][H3O+]

B) Ka = [C2H5COO-][H3O+]

[C2H5COOH][H2O]

C)Ka = [C2H5COO-][H3O+]

[C2H5COOH]

D)Ka = [C2H5COO-]

[C2H5COOH]

The pKa for hydrazoic acid is 4.72. The Ka is

A)5.25 x 104  
B) 0.674  
C) 1.9 x 10-5  
D) 1.36

What is the pH of 0.100 M solution of HNO3 ?

A)0.100  
B) 1.00  
C) -1.00  
D)Cannot be determined without additional information

The pH of a 0.100 M solution of benzoic acid (Ka = 6.25 x 10-5) is

A)1  
B)5.0  
C)6.25  
D)2.60