

Acid-Base – Equilibrium Practice**Name:** _____

1. Butyric acid is responsible for the odor in rancid butter. A solution of 0.25 M butyric acid has a pH of 2.71. What is the K_a for the acid? (*ans: 1.5×10^{-3}*)

2. Formic acid, which is a component of insect venom, has a $K_a = 1.8 \times 10^{-4}$. What is the $[H_3O^+]$ in a solution that is initially 0.10 M formic acid, HCOOH? (*ans: $4.2 \times 10^{-3} M$*)

3. What is the pH of a 0.20 M solution of NH_4Cl ? [$K_b(NH_3) = 1.8 \times 10^{-5}$] (*ans: 4.98*)

4. Farmers who raise cotton once used arsenic acid, H_3AsO_4 , as a defoliant at harvest time. Arsenic acid is a polyprotic acid with $K_1 = 2.5 \times 10^{-4}$, $K_2 = 5.6 \times 10^{-8}$, and $K_3 = 3 \times 10^{-13}$. What is the pH of a 0.500 M solution of arsenic acid? (*ans: 1.96*)