Quiz Chapter 16 − Question Two

Michael Brodskiy

Instructor: Mr. Morgan

May 18, 2021

$$k_a = \frac{[\text{H}^+][\text{C}_9\text{H}_7\text{O}_4{}^-]}{[\text{HC}_9\text{H}_7\text{O}_4]}$$
$$[\text{H}^+] = 10^{-2.24} = .00575[\text{M}]$$
$$[\text{C}_9\text{H}_7\text{O}_4{}^-] = [\text{H}^+] = .00575[\text{M}]$$
$$\frac{(.00575)^2}{.1} = .00033$$
$$\Delta G = -RT\ln(k)$$
$$-(8.314)(298)(\ln(.00033)) = 19.85[\text{kJ}]$$

(1)