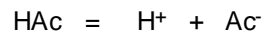


$$C_0 := 0.0550 \cdot \text{M}$$

$$K_a := 1.80 \cdot 10^{-5} \cdot \text{M}$$



$$C_0 - x \quad x \quad x$$

$$K_a = \frac{(\text{H}) \cdot (\text{Ac})}{(\text{HAc})} = \frac{(x) \cdot (x)}{C_0 - x}$$

$$K_a = \frac{x^2}{C_0}$$

$$x = \sqrt{K_a \cdot C_0}$$

$$x := \sqrt{(1.80 \cdot 10^{-5} \cdot \text{M}) \cdot (0.055 \cdot \text{M})} \quad x = 9.94987 \times 10^{-4} \text{M}$$

$$\frac{x^2}{C_0 - x} = 1.83316 \times 10^{-5} \text{M}$$

$$K_a \cdot (C_0 - x) = x^2$$

$$x^2 + K_a \cdot x - K_a \cdot C_0 = 0$$

$$x := \frac{-K_a + \sqrt{K_a^2 - (4) \cdot (1) \cdot (-K_a \cdot C_0)}}{2 \cdot (1)}$$

$$x = 9.86028 \times 10^{-4} \text{M}$$

$$-\log(5.107 \cdot 10^{-4}) = 3.29183$$