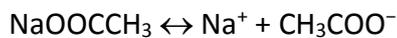


## Answer on Question #63570 - Chemistry – Inorganic Chemistry

Determine the pH when 5.89 g of sodium acetate (NaOOCCH<sub>3</sub>) is dissolved in 190 mL of water. K<sub>a</sub> of acetic acid is 1.8 · 10<sup>-5</sup>.

### Solution.



$$K_a = 1.8 \cdot 10^{-5}; \text{p}K_a = -\lg K_a = 4.74$$

$$\text{pH} = 7 + \frac{1}{2} \text{p}K_{\text{CH}_3\text{COOH}} + \frac{1}{2} \lg C_{\text{NaOOCCH}_3}$$

$$C(\text{NaOOCCH}_3) = \frac{v(\text{NaOOCCH}_3)/V(\text{solution})}{V(\text{solution})} = \frac{m(\text{NaOOCCH}_3)/(M(\text{NaOOCCH}_3) \times V(\text{solution}))}{V(\text{solution})} = 5.89 / ((23+32+24+3) \times 0.19) = 0.378 \text{ mol/L}$$

$$\text{pH} = 7 + 1/2 \times 4.74 + 1/2 \times \lg(0.378) = 9.16$$

**Answer:** pH = 9.16