

Name: \_\_\_\_\_

Blk: \_\_\_\_\_ Date: \_\_\_\_\_

Chemistry 12  
worksheet on  $K_a$ ,  $K_b$ , pH and pOH

1. The methylammonium ion ( $\text{CH}_3\text{NH}_3^+$ ) acts as a weak acid in aqueous solution.
- Write an equation showing the hydrolysis of the methylammonium ion to form  $\text{H}_3\text{O}^+$ .
  - It is found that a 0.25 M solution of the methylammonium ion ( $\text{CH}_3\text{NH}_3^+$ ) has a pH of 5.62. Calculate the value of  $K_a$  for  $\text{CH}_3\text{NH}_3^+$ . Show your work.
2. A student prepares a solution of  $\text{CH}_3\text{COOH}$  that has a pH of 5.165. Calculate the initial concentration of  $\text{CH}_3\text{COOH}$ . Show your work.
3. The oxalate ion ( $\text{C}_2\text{O}_4^{2-}$ ) acts as a weak base in aqueous solution.
- Write an equation showing the hydrolysis of  $\text{C}_2\text{O}_4^{2-}$  to form  $\text{OH}^-$ .
  - Calculate the pH of a 0.15 M solution of sodium oxalate ( $\text{Na}_2\text{C}_2\text{O}_4$ ). Show your work.