

Chemistry – Chapter 19 Book problems #5: Chapter review

1. Classify each compound as an Arrhenius acid or an Arrhenius base:

- | | | |
|-----------------------------|-------------------|----------------------------|
| A. $\text{Ca}(\text{OH})_2$ | C. HNO_3 | E. HBr |
| B. CH_3COOH | D. KOH | F. H_2SO_4 |

2. What is the molarity of sodium hydroxide if 20.0 mL of the solution is neutralized by each of the following 1.00 M solutions?

- A. 28.0 mL HCl
- B. 17.4 mL H_3PO_4

3. Predict whether each anhydride will become acidic or basic:

- | | | |
|---------------------------|---------------------------|---------------------------------------|
| A. SO_3 | C. N_2O_5 | E. K_2O |
| B. P_2O_3 | D. MgO | F. $(\text{CH}_3\text{CO})_2\text{O}$ |

4. Write the formula and name of the conjugate base of each Brønstad-Lowry acid:

- | | |
|---------------------|----------------------------|
| A. HCO_3^- | C. HI |
| B. NH_4^+ | D. H_2SO_4 |

5. Write the formula for the conjugate base of each of the following acids:

- | | |
|-----------------------------|-------------------------|
| A. H_2SO_4 | C. H_2O |
| B. CH_3COOH | |

Calculate the following values, given the following information:

- 6. $\text{pH} = 4.85$; $[\text{OH}^-] = ?$
- 7. $\text{pOH} = 12.1$; $[\text{H}^+] = ?$
- 8. $\text{pH} = 13.1$; $[\text{H}^+] = ?$
- 9. $[\text{H}^+] = 4.12 \times 10^{-4}$; $\text{pOH} = ?$
- 10. $[\text{OH}^-] = 4.12 \times 10^{-6}$; $\text{pH} = ?$