Name _____ Date _____ Class _____

19–3 Practice Problems

1. A volume of 30. mL of 0.25 *M* HCl neutralizes a 50. mL sample of KOH solution. What is the concentration of KOH?

2. A volume of 9.0 mL of 0.70 *M* NH_3 neutralizes a 35 mL sample of $HClO_4$ solution. What is the concentration of $HClO_4$?

3. A volume of 90 mL of 0.2 *M* HBr neutralizes a 60 mL sample of NaOH solution. What is the concentration of the NaOH solution?

4. A volume of 37 mL of 0.36 *M* KCN neutralizes a 75-mL sample of HClO solution. What is the concentration of HClO?

5. A volume of 46 mL of 0.40 *M* NaOH neutralizes an 80.-mL sample of HCN solution. What is the concentration of HCN?

6. A volume of 50. mL of 0.30 *M* HCl neutralizes a 60.-mL sample of $Ca(OH)_2$ solution. What is the concentration of $Ca(OH)_2$? (Hint: Each $Ca(OH)_2$ molecule contributes two OH^- ions.)

7. A volume of 20. mL of 0.25 *M* $Al(OH)_3$ neutralizes a 75-mL sample of H_2SO_4 solution. What is the concentration of H_2SO_4? (Hint: Each $Al(OH)_3$ molecule contributes three OH^- ions, and each H_2SO_4 molecule contributes two H_3O^+ ions.)

8. A volume of 135 mL of 0.40 *M* HCl neutralizes a 90.-mL sample of $Ca(OH)_2$ solution. What is the concentration of $Ca(OH)_2$?

9. A volume of 60. mL of 0.60 *M* HBr neutralizes an 80.-mL sample of $Ca(OH)_2$ solution. What is the concentration of $Ca(OH)_2$?

10. A volume of 10. mL of 0.75 *M* NaOH neutralizes a 30.-mL sample of HClO solution. What is the concentration of HClO?