

**Worksheet 6****pH Calculations for Weak Acids**

Calculate the  $[H^+]$ ,  $[OH^-]$ , pH, and pOH for 0.30 M  $HNO_2$ .

$$[H^+] = \underline{\hspace{2cm}} \quad [OH^-] = \underline{\hspace{2cm}} \quad pH = \underline{\hspace{2cm}} \quad pOH = \underline{\hspace{2cm}}$$

Calculate the  $[H^+]$ ,  $[OH^-]$ , pH, and pOH for 1.25 M  $HCOOH$ .

$$[H^+] = \underline{\hspace{2cm}} \quad [OH^-] = \underline{\hspace{2cm}} \quad pH = \underline{\hspace{2cm}} \quad pOH = \underline{\hspace{2cm}}$$

Calculate the  $[H^+]$ ,  $[OH^-]$ , pH, and pOH for 0.250 M  $CH_3COOH$ .

$$[H^+] = \underline{\hspace{2cm}} \quad [OH^-] = \underline{\hspace{2cm}} \quad pH = \underline{\hspace{2cm}} \quad pOH = \underline{\hspace{2cm}}$$

Calculate the  $[H^+]$ ,  $[OH^-]$ , pH, and pOH for 0.65 M  $H_3BO_3$ .

$$[H^+] = \underline{\hspace{2cm}} \quad [OH^-] = \underline{\hspace{2cm}} \quad pH = \underline{\hspace{2cm}} \quad pOH = \underline{\hspace{2cm}}$$

The pH of 0.20 M HCN is 5.00. Calculate the  $K_a$  for HCN. Compare your calculated value with that in the table.

The pH of 2.20 M HF is 1.56. Calculate the  $K_a$  for HF. Compare your calculated value with that in the table.

The pH of 0.805 M  $\text{CH}_3\text{COOH}$  is 2.42. Calculate the  $K_a$  for  $\text{CH}_3\text{COOH}$ . Compare your calculated value with that in the table.

The pH of 1.65 M  $\text{H}_3\text{BO}_3$  is 4.46. Calculate the  $K_a$  for  $\text{H}_3\text{BO}_3$ . Compare your calculated value with that in the table.

Calculate the  $[H^+]$ ,  $[OH^-]$ , pH, and pOH for 0.20 M  $H_2CO_3$ .

$[H^+] =$  \_\_\_\_\_  $[OH^-] =$  \_\_\_\_\_ pH = \_\_\_\_\_ pOH = \_\_\_\_\_

The pH of 0.20 M  $H_2CO_3$  is 3.53. Calculate the  $K_a$  for  $H_2CO_3$ . Compare your calculated value with that in the table.

Calculate the  $[H^+]$ ,  $[OH^-]$ , pH, and pOH for 0.10 M  $CH_3COOH$ .

$[H^+] =$  \_\_\_\_\_  $[OH^-] =$  \_\_\_\_\_ pH = \_\_\_\_\_ pOH = \_\_\_\_\_

The pH of 0.10 M  $CH_3COOH$  is 2.87. Calculate the  $K_a$  for  $CH_3COOH$ . Compare your calculated value with that in the table.