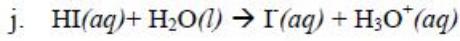
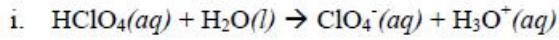
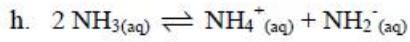
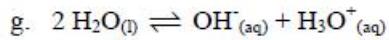
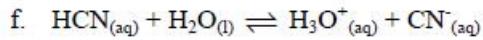
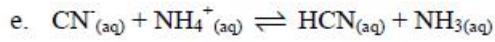
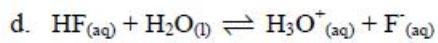
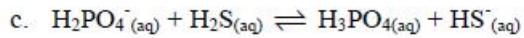
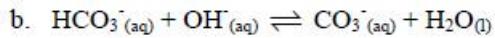
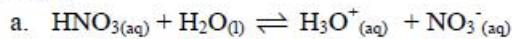


Chemical Reactions
4.8 Introduction to Acid-Base Reactions
Worksheet

- 1) Label the acid, base, conjugate acid, and conjugate base in the following reactions.



2) What is the strongest base in each of the following reactions? Provide justification based on solution equilibrium or forces of attraction between particles.

- $\text{HClO}_4\text{(aq)} + \text{H}_2\text{O(l)} \rightarrow \text{ClO}_4^-\text{(aq)} + \text{H}_3\text{O}^+\text{(aq)}$
- $\text{HNO}_3\text{(aq)} + \text{H}_2\text{O(l)} \rightarrow \text{NO}_3^-\text{(aq)} + \text{H}_3\text{O}^+\text{(aq)}$
- $2 \text{H}_2\text{O(l)} \rightleftharpoons \text{OH}^-\text{(aq)} + \text{H}_3\text{O}^+\text{(aq)}$
- $\text{HF(aq)} + \text{H}_2\text{O(l)} \rightleftharpoons \text{H}_3\text{O}^+\text{(aq)} + \text{F}^-\text{(aq)}$

3) What is the strongest acid in each of the following reactions? Provide justification based on solution equilibrium

- $\text{HI(aq)} + \text{H}_2\text{O(l)} \rightarrow \text{I}^-\text{(aq)} + \text{H}_3\text{O}^+\text{(aq)}$
- $\text{H}_2\text{SO}_4\text{(aq)} + \text{H}_2\text{O(l)} \rightarrow \text{HSO}_4^-\text{(aq)} + \text{H}_3\text{O}^+\text{(aq)}$
- $\text{HNO}_3\text{(aq)} + \text{H}_2\text{O(l)} \rightarrow \text{NO}_3^-\text{(aq)} + \text{H}_3\text{O}^+\text{(aq)}$

4) Identify the conjugate acid base pairs in the following reactions.

- $\text{HF(aq)} + \text{H}_2\text{O(l)} \rightleftharpoons \text{H}_3\text{O}^+\text{(aq)} + \text{F}^-\text{(aq)}$
- $\text{CH}_3\text{COOH} + \text{H}_2\text{O} \rightleftharpoons \text{CH}_3\text{COO}^- + \text{H}_3\text{O}^+$
- $\text{H}_2\text{SO}_4\text{(aq)} + \text{H}_2\text{O(l)} \rightarrow \text{HSO}_4^-\text{(aq)} + \text{H}_3\text{O}^+\text{(aq)}$