

Exercise walk-through

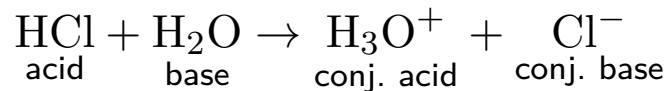
4.8

Introduction to Acid-Base Reactions

AP Chemistry

Acid-base reactions

Bronsted-Lowry – : an **acid**
donates a proton, a **base** **accepts** one.



Conjugate pairs differ by
one H^+ .

- **strong** – ionizes almost completely (HCl, NaOH)
- **weak** – ionizes only slightly (vinegar)

Acid + base $\rightarrow$ salt + water
(**neutralization**).

Exercises 2.1-2.3

2.1 Define a Brønsted-Lowry acid.

[1]

2.2 Write the products of $\text{HNO}_3 + \text{KOH}$.

[2]

2.3 What is the conjugate base of HF?

[1]

Exercises 2.1-2.3

2.1 Define a Brønsted-Lowry acid. [1]

2.1

- A proton (H^+) donor
-

2.2 Write the products of $\text{HNO}_3 + \text{KOH}$. [2]

2.2

- $\text{KNO}_3 + \text{H}_2\text{O}$ (salt + water)
-

2.3 What is the conjugate base of HF ? [1]

2.3

- F^-

Exercise 3.1

3.1 A Brønsted-Lowry base is a

[1]

☐

A proton donor

B proton acceptor

C electron donor

D hydroxide only

Exercise 3.1

3.1 A Brønsted-Lowry base is a

[1]

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A proton donor

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D hydroxide only

3.1 B

- a proton acceptor

Exercise 3.2 (a)

3.2 Consider $\text{NH}_3 + \text{H}_2\text{O} \rightleftharpoons \text{NH}_4^+ + \text{OH}^-$.

(a) Identify the acid and base on the left.

[2]

Exercise 3.2 (a)

3.2 Consider $\text{NH}_3 + \text{H}_2\text{O} \rightleftharpoons \text{NH}_4^+ + \text{OH}^-$.

(a) Identify the acid and base on the left.

[2]

(a)

- H_2O is the acid (donates H^+); NH_3 is the base (accepts)

Exercise 3.2 (b)

3.2 Consider $\text{NH}_3 + \text{H}_2\text{O} \rightleftharpoons \text{NH}_4^+ + \text{OH}^-$.

(b) Identify the conjugate acid-base pairs.

[2]

Exercise 3.2 (b)

3.2 Consider $\text{NH}_3 + \text{H}_2\text{O} \rightleftharpoons \text{NH}_4^+ + \text{OH}^-$.

(b) Identify the conjugate acid-base pairs.

[2]

(b)

- $\text{NH}_3/\text{NH}_4^+$ and $\text{H}_2\text{O}/\text{OH}^-$

Exercise 3.3

3.3 Write the balanced molecular equation for the neutralization of sulfuric acid H_2SO_4 with sodium hydroxide. [3]

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3.3

