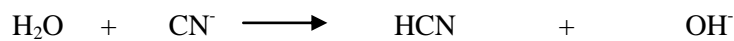


CHEM 160 WORKSHEET FOR CHAPTER 14

In the following equation, label each substance as an acid, base, conj. acid or conj. base.



Label each of these as a acid / conjugate base or base/conj. acid or neither.

- A) HCN / CN^- B) $\text{OH}^- / \text{H}_2\text{O}$ C) H^+ / HCl D) $\text{OH}^- / \text{HC}_2\text{H}_3\text{O}_2$

Which of the following acids is considered a strong acid?

- A) HF B) $\text{HC}_2\text{H}_3\text{O}_2$ C) NaOH D) HNO_3

Which of the following reactions is a neutralization reaction?

- A) $2\text{HCl} + \text{Zn} \longrightarrow \text{H}_2 + \text{ZnCl}_2$
 B) $\text{HNO}_3 + \text{NaOH} \longrightarrow \text{H}_2\text{O} + \text{NaNO}_3$
 C) $\text{NaCl} + \text{AgNO}_3 \longrightarrow \text{AgCl} + \text{NaNO}_3$
 D) $2\text{H}_2\text{O} \longrightarrow 2\text{H}_2 + \text{O}_2$

What is the molar concentration of hydroxide ion if the concentration of hydronium ion is $2.0 \times 10^{-4} \text{ M}$?

- A) $2.0 \times 10^{-4} \text{ M}$ B) $2.0 \times 10^{-18} \text{ M}$ C) $5.0 \times 10^{-11} \text{ M}$ D) $2.0 \times 10^{10} \text{ M}$

Which of the following solutions is more acidic?

- A) $[\text{H}^+] = 1 \times 10^{-7}$ B) $[\text{H}^+] = 1 \times 10^{-5}$ C) $[\text{OH}^-] = 1 \times 10^{-7}$ D) $[\text{OH}^-] = 1 \times 10^{-14}$

Which solution is considered neutral? A) pH = 3 B) pH = 5 C) pH = 7 D) pH = 9

What is the pH of a solution that has $[\text{H}^+] = 1 \times 10^{-4}$ and $[\text{OH}^-] = 1 \times 10^{-10}$?

- A) pH = 4 B) pH = -4 C) pH = 10 D) pH = -10

Which of the following is NOT a property of bases?

- A) Bases have a slippery feel.
 B) Bases have a bitter taste.
 C) Bases turn litmus paper blue.
 D) Bases dissolve many metals.
 E) All of the above are properties of bases.

In the following reaction: $\text{HCO}_3^- (aq) + \text{H}_2\text{O} (aq) \rightarrow \text{H}_2\text{CO}_3 (aq) + \text{OH}^- (aq)$

- A) HCO_3^- is an acid and H_2CO_3 is its conjugate base.
 B) H_2O is an acid and OH^- is its conjugate base.
 C) HCO_3^- is an acid and OH^- is its conjugate base.
 D) H_2O is an acid and H_2CO_3 is its conjugate base.
 E) H_2O is an acid and HCO_3^- is its conjugate base.

What is the conjugate base of HO^- ?

- A) O^{2-} B) H_2O C) NaOH D) OH^- E) H_3O^+

Which of the following pairs is *incorrectly* matched?

	<u>Compound</u>	<u>Classification</u>
A)	HI	strong acid
B)	Ca(OH) ₂	weak base
C)	HNO ₂	weak acid
D)	NH ₃	weak base

Which of the following correctly describes an acidic solution

- A. pOH = 4 B. pH = 9 C. $H^+ = 1 \times 10^{-5} M$ D. $OH^- = 1 \times 10^{-5} M$ E. All describe an acidic solution

If the pH of a solution is 12.5, then the pOH is

- A. 12.5 B. 2.5 C. 1.5 D. -1.5 E. -2.5

What is the pH of a solution where $[H_3O^+] = 1 \times 10^{-3}$

- A. 0.001 B. 11 C. -3 D. 14 E. 3

A solution is considered neutral if

- A. pH = pOH B. $[H_3O^+] = [OH^-]$ C. $OH^- = 1 \times 10^{-7} M$ D. pOH = 7 E. A, B, C, D are all correct

A solution where $OH^- = 1 \times 10^{-4}$ has a H_3O^+ of

- A. 1×10^{-4} B. 1×10^4 C. 1×10^{14} D. 1×10^{-10} E. 10

A 1 M solution of HCl has a _____ concentration of H_3O^+ A) 0 M B) 0.5 M C) 1 M D) 2 M

A solution where $OH^- = 1 \times 10^{-5}$ has a pH of

- A. -5 B. 5 C. 10 D. 9 E. -9

What is the concentration of the hydroxide ions in a neutral solution?

- A) 0.0 M B) $1.0 \times 10^{-7} M$ C) $1.0 \times 10^{-1} M$ D) $> 1.0 \times 10^{-7} M$ E) $< 1.0 \times 10^{-7} M$

Which solution below is the most acidic?

- A) pH = 3.21 B) pH = 12.49 C) pH = 7.00 D) pH = 10.12 E) pH = 7.93