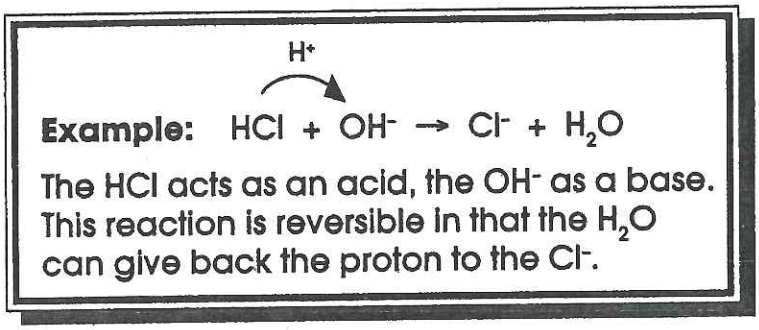
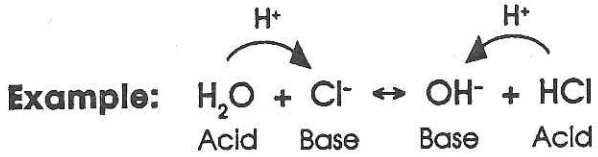
BRONSTED-LOWRY ACIDS AND BASES

Name _____

According to Bronsted-Lowry theory, an acid is a proton (H^+) donor, and a base is a proton acceptor.



Label the Bronsted-Lowry acids and bases in the following reactions and show the direction of proton transfer.



1. $H_2O + H_2O \leftrightarrow H_3O^+ + OH^-$ (A B A B)

2. $H_2SO_4 + OH^- \leftrightarrow HSO_4^- + H_2O$ (A B B A)

3. $HSO_4^- + H_2O \leftrightarrow SO_4^{-2} + H_3O^+$ (A B B A)

4. $OH^- + H_3O^+ \leftrightarrow H_2O + H_2O$ (B A A B)

5. $NH_3 + H_2O \leftrightarrow NH_4^+ + OH^-$ (B A A B)

Practice Worksheet Naming Acids | acids

Review:

- **Acids – compounds of H and nonmetals**

2 categories whether it contains oxygen or not

1. Binary Acids –two elements – another name is nonoxoacid – without oxygen
   Prefix
   hydro + root name + -ic acid
   eg. H_2S hydrosulfuric acid

2. Polyatomic Acids – contain a polyatomic ion – another name is oxoacid – with oxygen
   polyatomic anion root + -ic or –ous + acid
   if the polyatomic ion ends in –ate
   use –ic
   if the polyatomic ion ends in –ite
   use –ous
   eg. H_2SO_4 sulfuric acid
   HClO hypochlorous acid

Hints: N = nitr, S = sulfur, P = phosphor, C = carbon, acet = for $C_2H_3O_2^-$
Cl, Br, & I are chlor-, brom-, & iod-

Write formulas for the Following:

Chloric acid	H^+	ClO_3^{-1}	$HClO_3$
Chlorous acid	H^+	ClO_2^{-1}	$HClO_2$
Hydrofluoric acid	H^+	F^{-1}	HF
Hypochlorous acid	H^+	ClO^{-1}	$HClO$
Hydroiodic acid	H^+	I^{-1}	HI
Phosphorous acid	H^+	PO_3^{-3}	H_3PO_3
Carbonic acid	H^+	CO_3^{-2}	H_2CO_3
Perchloric acid	H^+	ClO_4^{-1}	$HClO_4$
Permanganic acid	H^+	MnO_4^{-1}	$HMnO_4$

Name the Following

HIO_4	periodate	periodic acid
H_3PO_4	phosphate	phosphoric acid
HCl	chloride	hydrochloric acid
HNO_2	nitrite	nitrous acid
HIO_3	iodate	iodic acid
HNO_3	nitrate	nitric acid
$HC_2H_3O_2$	acetate	acetic acid
$H_2C_2O_4$	oxalate	oxalic acid
$HBrO_3$	bromate	bromic acid
HBr	bromide	hydrobromic acid