

Acids & Bases

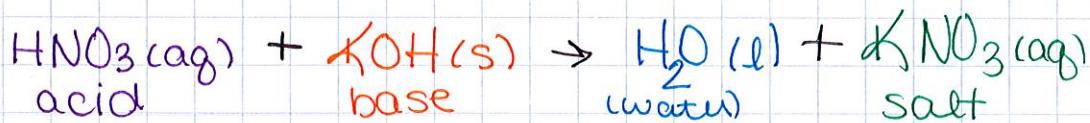
Properties

Acids

- taste sour
- electrolytes - conduct electricity
- react w/ metals to produce $H_2(g)$
- $HCl(aq) + Mg(s) \rightarrow H_2(g) + MgCl_2(aq)$
- react w/ bases to produce a salt: H_2O
- turn blue litmus paper red

Bases

- taste bitter
- electrolytes
- react w/ acids to produce a salt & water
- turn red litmus paper blue.

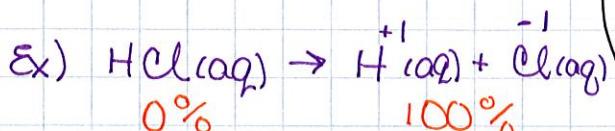


% Dissociation & Strength

↳ break apart into ions in H_2O

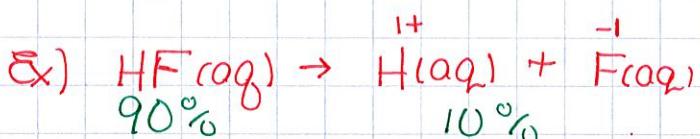
Strong acids/bases

completely (100%) break apart (dissociate) into ions in solution



Weak acids/bases

break apart (dissociate) 10% or less

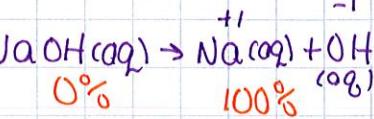


7 strong acids

- (1) HCl
- (2) HBr
- (3) HI
- (4) HNO_3
- (5) $HClO_3$
- (6) $HClO_4$
- (7) H_2SO_4

8 strong bases

- (1) $LiOH$
- (2) $NaOH$
- (3) KOH
- (4) $RbOH$
- (5) $CsOH$
- (6) $Ca(OH)_2$
- (7) $Sr(OH)_2$
- (8) $Ba(OH)_2$

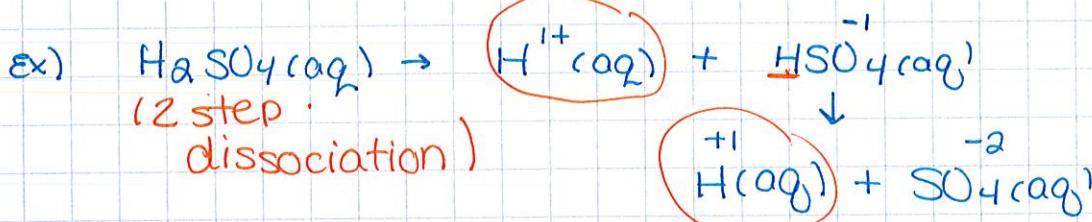
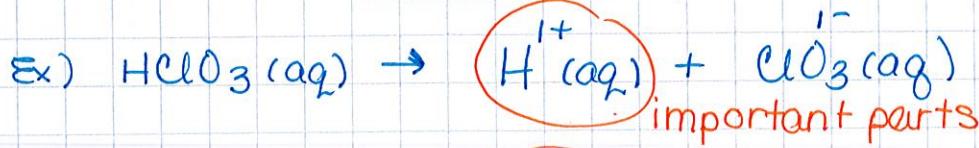


Acid/Base Theories (2)

(1) Arrhenius

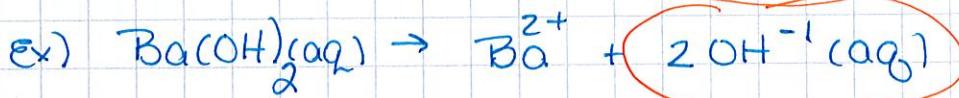
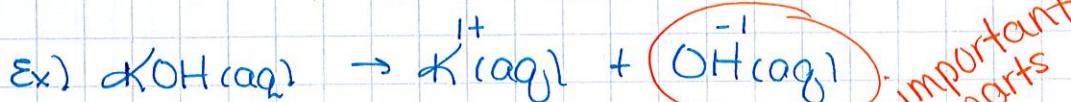
acids

substance that releases H^+ ions in solution



bases

substances that release OH^- ions in solution



(2) Bronsted-Lowry

acid

substances that donate H^+ ions in solution.

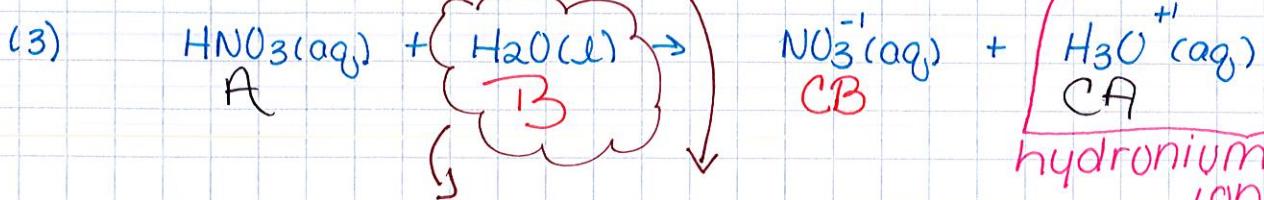
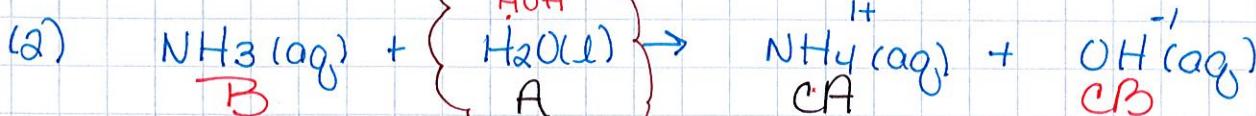
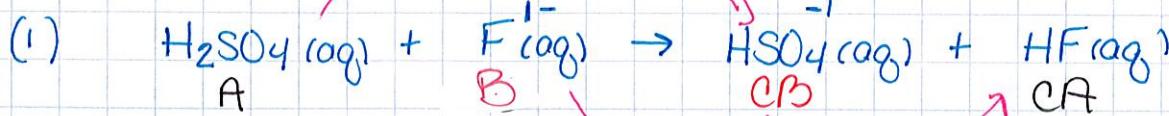
All acids have a conjugate base - the substance that remains after the acid donates a H^+ ion.

base

substances that accept H^+ ions in solutions

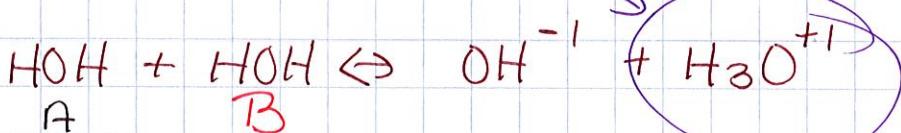
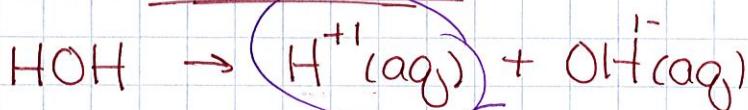
All bases have conjugate acids - the substance the base becomes after getting an H^+ ion

Ex

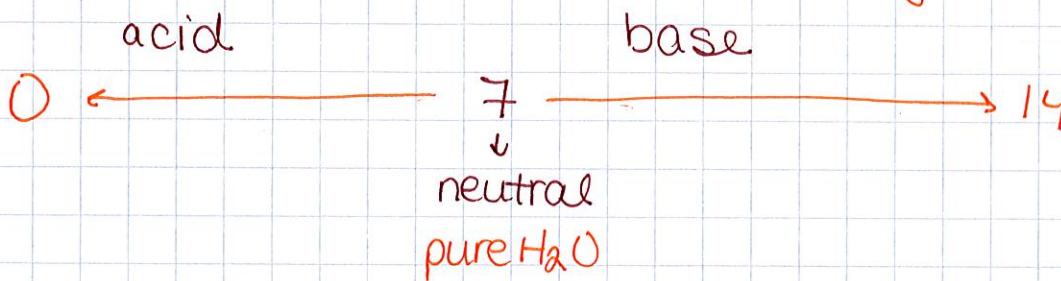


Any substance that can act as either an acid or base is called

AMPHOTERIC



pH = power of hydrogen



Ex) milk pH=6 acid

bleach pH=13 base

Lemon juice pH=2 acid

peum solution pH=8.5
base

(3)