

## Acid Base Rxn (Neutralization Rxn)

### Acids:

Subst. that produces  $H^+$  in soln.-  
means are proton donors

Form one  $H^+$  called monoprotic acids



produces 1

$H^+$   
↑  
proton

Form two  $H^+$  called diprotic acids



Common acids:  $HCl$ ,  $HNO_3$ ,  $H_2SO_4$ ,  
 $HC_2H_3O_2$  (vinegar), vitamin C

Strong acids (strong electrolytes)

ionize completely:  $HCl$ ,  $HBr$ ,  
 $HNO_3$ ,  $H_2SO_4$ ,  $HClO_3$ ,  $HClO_4$



Weak acids (weak electrolytes) do NOT ionize completely: organic acids, vinegar, water, HF

Bases: Subst. produces  $\text{OH}^-$  in soln.-means are proton acceptors

Will react with  $\text{H}^+$  produced by acids

Don't have to contain  $\text{OH}^-$  to be a base

Common bases:  $\text{NH}_3$  (ammonia), drano, milk of magnesia, baking soda

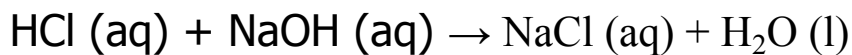
Strong bases (strong electrolytes)

ionize completely: Group 1A metal hydroxides,  
 $\text{Ca}(\text{OH})_2$ ,  $\text{Ba}(\text{OH})_2$ ,  $\text{Sr}(\text{OH})_2$

Weak bases (weak electrolytes) do NOT ionize  
completely: ammonia

Neutralization Rxn:

Occurs when acid and base react



Acid                      base                      salt                      water



In general produces a salt and water

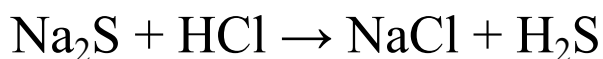
Salt-ionic cmpd whose cation comes from a base and  
anion from an acid

typical ex. of neutralization rxn:

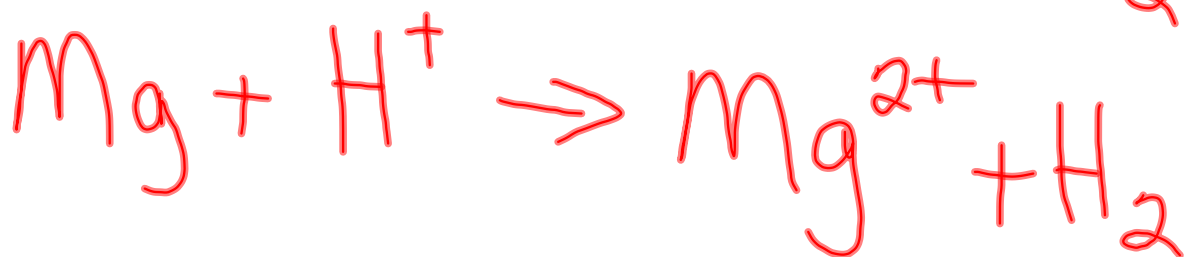
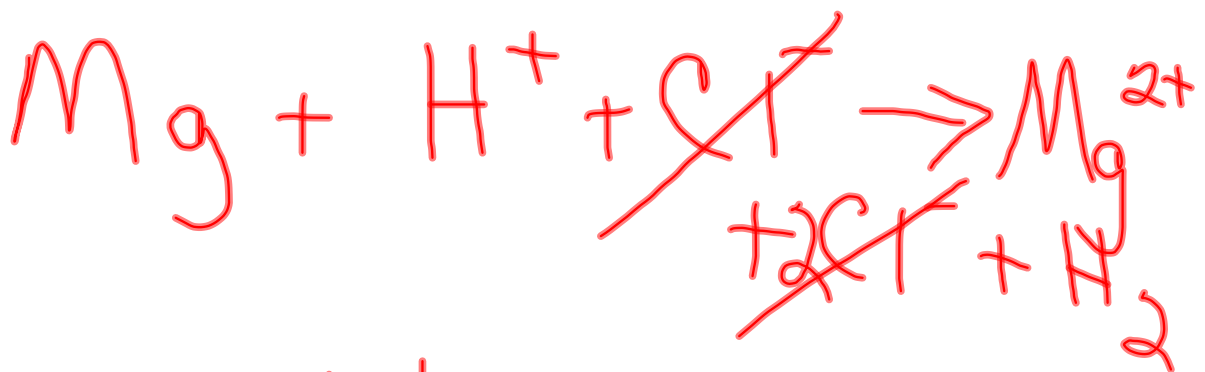
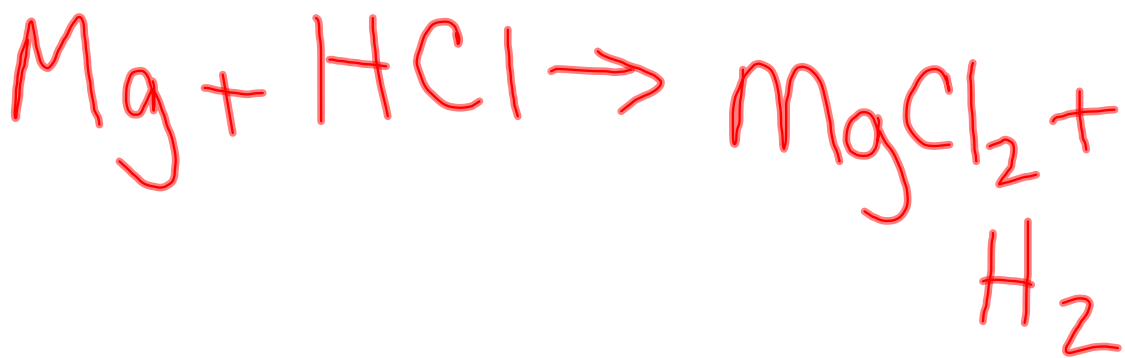
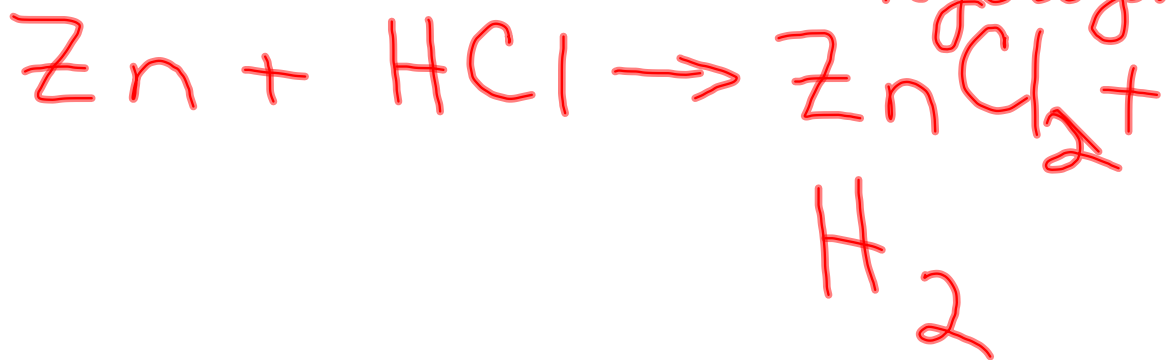
1. metallic hydroxide + acid produces salt + water
2. carbonates and bicarbonates produce CO<sub>2</sub> when treated with an acid

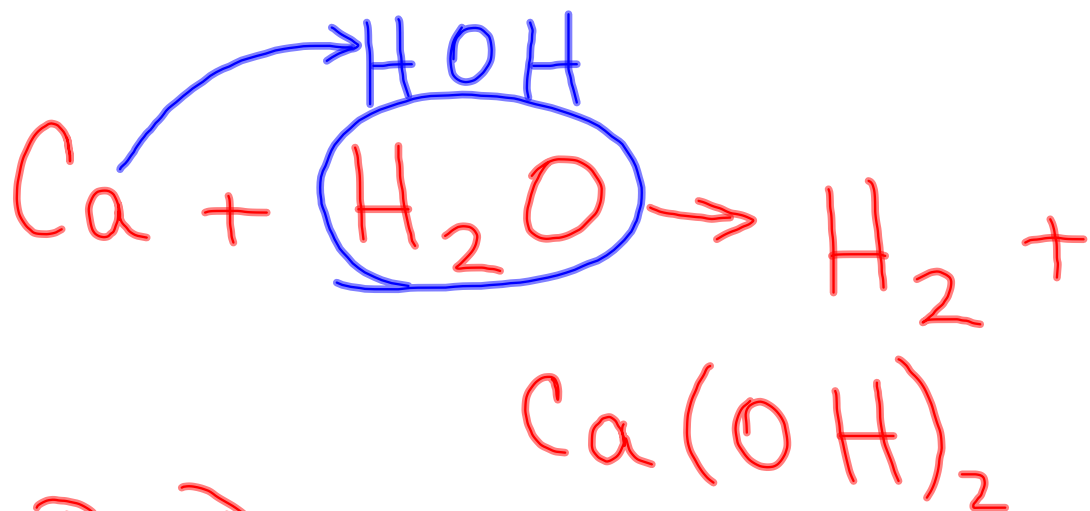


3. rxn of sulfides with acids give H<sub>2</sub>S (rotten eggs)



metal + acid  $\rightarrow$  salt +  
hydrogen





RED  
ACID

Base  
Blue