

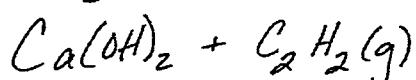
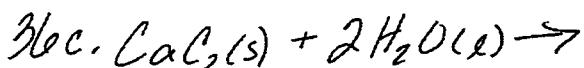
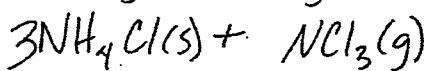
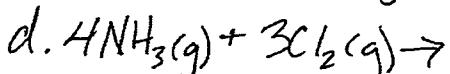
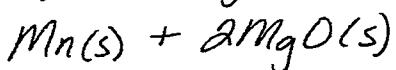
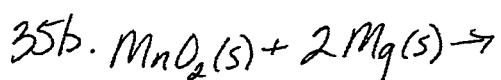
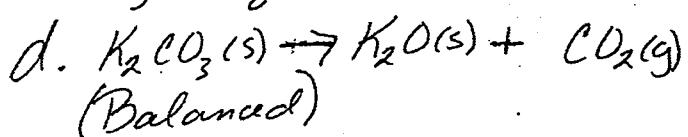
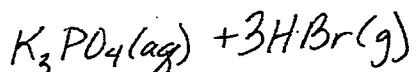
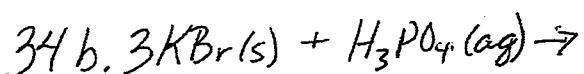
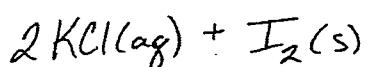
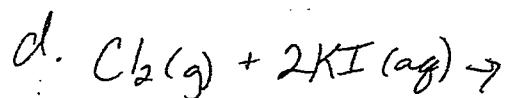
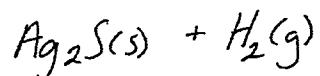
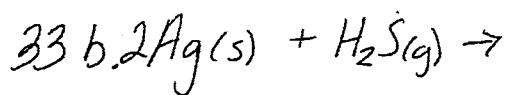
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- 6 b. Calcium fluoride  
 d. calcium bromide  
 e. strontium oxide  
 g. cesium iodide
- 8 b. manganese (II) chloride  
 d. copper (II) oxide  
 f. tin (IV) bromide
- 21 b. cobalt (II) phosphate  
 d. aluminum sulfate  
 f. ammonium sulfite
- 24 b. sulfuric acid  
 d. hydroiodic acid  
 f. chloric acid  
 h. hydrofluoric acid  
 i. acetic acid
- 25 b.  $AlI_3$   
 d.  $K_3N$   
 f.  $MgF_2$   
 h.  $BaH_2$
- 27 b.  $NH_4NO_3$   
 d.  $BaSO_4$   
 f.  $Cu(OH)_2$
- 28 b.  $HNO_3$   
 d.  $H_3PO_4$   
 f.  $HBr$   
 h. HF
- $Al^{3+} I^-$   
 $K^+ N^{3-}$   
 $Mg^{2+} F^-$   
 $Ba^{2+} H^-$   
 $NH_4^+ NO_3^{-2}$   
 $Ba^{2+} SO_4^{2-}$   
 $Cu^{+} OH^-$   
 $-ic = -ate$   
 $-ous = -ite$   
 hydro = no oxygen

- 29 b.  $Cu_2CO_3$   
 d.  $Ca(NO_3)_2$   
 f.  $Al(OH)_3$   
 h.  $FeSO_4$   
 j.  $PBr_5$   
 l.  $Ba(C_2H_3O_2)_2$   
 or  
 $Ba(CH_3COO)_2$
- $Cu^{+} CO_3^{2-}$   
 $Ca^{2+} NO_3^-$   
 $Al^{3+} OH^-$   
 $Fe^{2+} SO_4^{2-}$   
 nonmetals  
 $Ba^{2+}$   
 $C_2H_3O_2^-$

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5. reactants, products
7. gaseous
8. water
9.  $CaCO_3(s) \rightarrow CO_2(g) + CaO(s)$
11.  $H_2(g) + O_2(g) \rightarrow H_2O(g)$
13.  $Ag_2O(s) \rightarrow Ag(s) + O_2(g)$
15.  $B_2O_3(s) + Mg(s) \rightarrow B(g) + MgO(s)$
17.  $P_4(s) + Cl_2(g) \rightarrow PCl_3(g)$
19.  $NH_4NO_3(s) \rightarrow N_2O(g) + H_2O(g)$
21.  $C_2H_2(g) + O_2(g) \rightarrow CO_2(g) + H_2O(g)$
23.  $BaO(s) + Al(s) \rightarrow Ba(s) + Al_2O_3(s)$   
 $CaO(s) + Al(s) \rightarrow Ca(s) + Al_2O_3(s)$   
 $SrO(s) + Al(s) \rightarrow Sr(s) + Al_2O_3(s)$
25.  $CH_4(g) + Cl_2(g) \rightarrow CCl_4(l) + HCl(g)$
27.  $PbS(s) + O_2(g) \rightarrow PbO(s) + SO_2(g)$
29.  $NH_4NO_3(s) \rightarrow N_2(g) + O_2(g) + H_2O(g)$
31. subscripts (or formula)



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4. It separates into positive cations and negative anions.

5. The ions completely separate when dissolved in water.

$\text{NaCl}$ ,  $\text{KNO}_3$

6.  $\text{NaNO}_3$  is soluble in water.

8b. Yes -  $\text{K}^+$  salts are soluble.

d.  $\text{NO}^- \text{OH}^-$  compounds are insoluble

f. Yes -  $\text{NH}_4^+$  salts are soluble

h. No - exception to the rule

9b. Rule 6: most carbonates are insoluble

d. Rule 3: most chlorides are soluble except for  $\text{Ag}^+$

10b.  $\text{NH}_4^+ \text{NO}_3^-$  and  $\text{Ag}^+ \text{I}^-$   
(soluble) (insoluble)

$\text{AgI(s)}$  is silver iodide

d.  $\text{Na}^+ \text{Cl}^-$  and  $\text{Fe}^{3+} \text{OH}^-$   
(soluble) (insoluble)

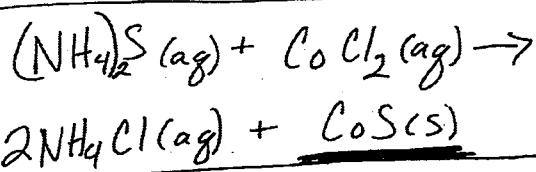
$\text{Fe(OH)}_3$  is iron(III) hydroxide

f.  $\text{Na}^+ \text{NO}_3^-$  and  $\text{Ba}^{2+} \text{CO}_3^{2-}$   
(soluble) insoluble

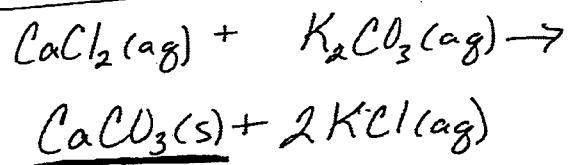
$\text{BaCO}_3$  is barium carbonate

11b. • molecular equation (balanced)  
• underline solid

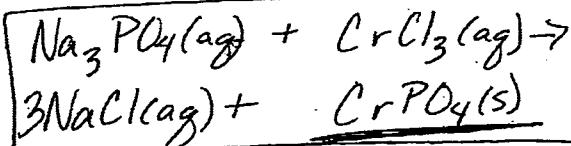
$\text{NH}_4^+ \text{Cl}^-$  and  $\text{Co}^{2+} \text{S}^{2-}$   
(soluble) (insoluble)

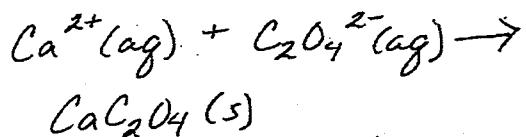
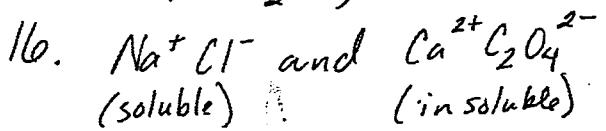
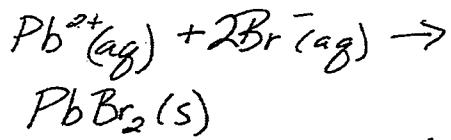
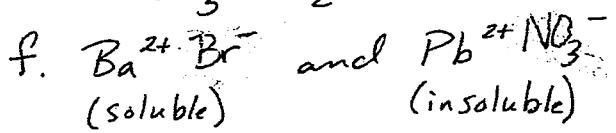
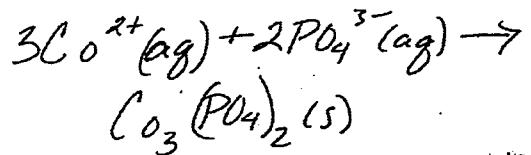
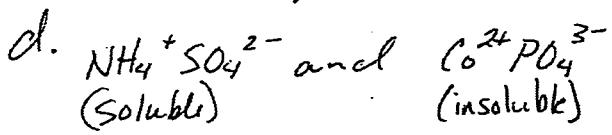
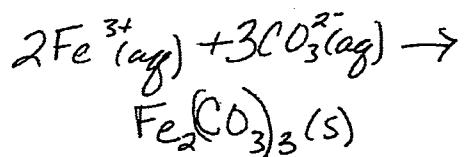
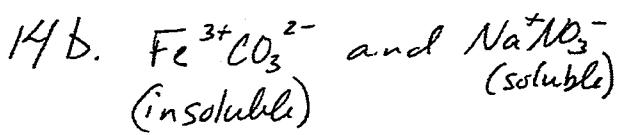
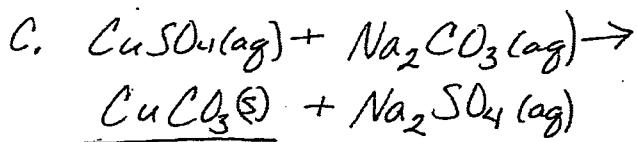
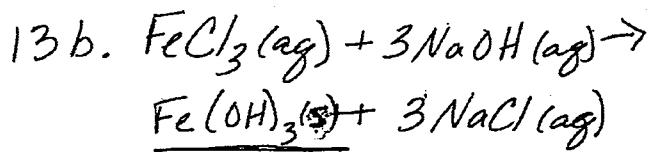
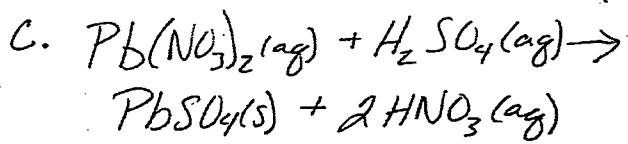
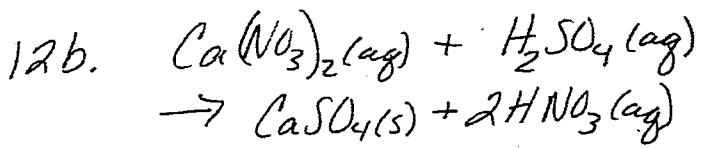


d.  $\text{Ca}^{2+} \text{CO}_3^{2-}$  and  $\text{K}^+ \text{Cl}^-$   
(insoluble) (soluble)

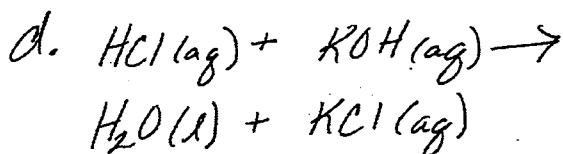
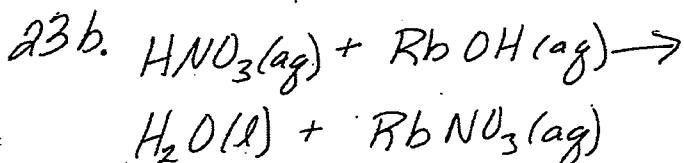
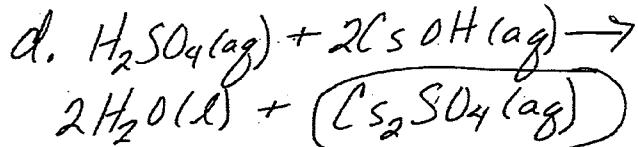
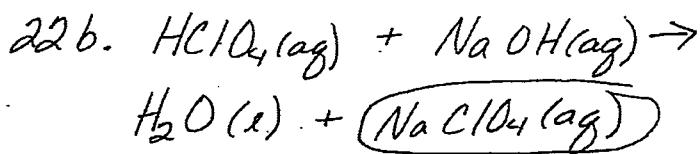
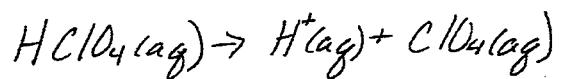
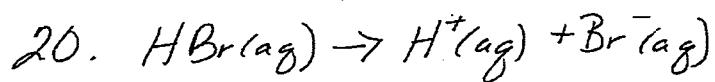


f.  $\text{Na}^+ \text{Cl}^-$  and  $\text{Cr}^{3+} \text{PO}_4^{3-}$   
(soluble) (insoluble)





17. Strong Acids completely ionize in water. Strong Electrolytes conduct electricity.



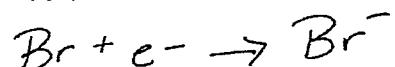
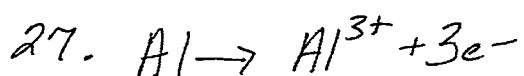
24. A driving force helps convert reactants into products. When metals react with nonmetals, metals lose electrons and nonmetals gain electrons.

ex. Na becomes  $\text{Na}^+$   
Cl becomes  $\text{Cl}^-$

25. Na loses electrons. (metals). S gains electrons. (nonmetals).

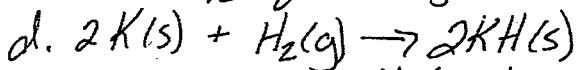
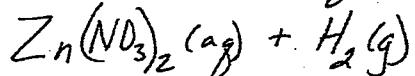
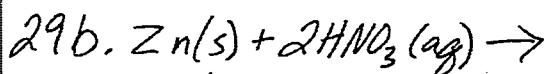
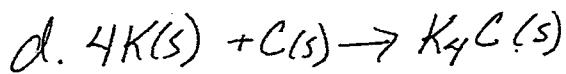
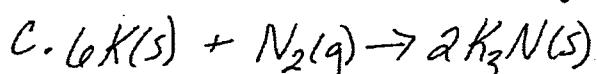
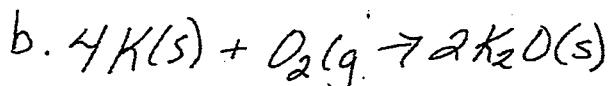
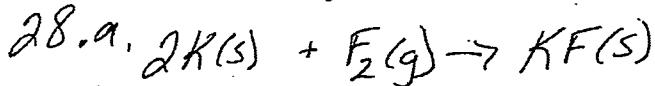
26. K loses one electron.  
S gains two electrons.

Two K react with one S.  
K would become  $\text{K}^+$ .  
S would become  $\text{S}^{2-}$ .



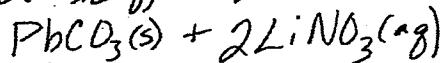
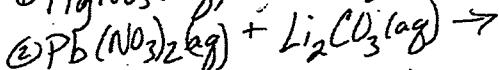
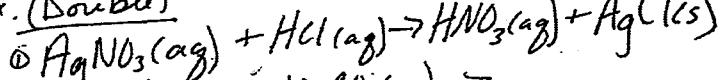
Aluminum loses  $3\text{e}^-$ .

Bromine gains  $1\text{e}^-$ .

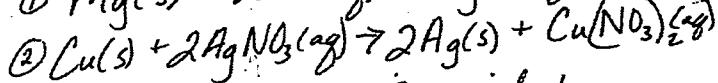
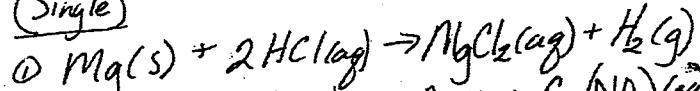


30. Positive ions switch places and bond to the other negative ion.  
A pure element reacts with a compound and a different pure element is produced in single replacement reactions.

Ex. (Double)



Ex. (Single)



32a. precipitation

b. redox

c. precipitation

d. acid-base

e. redox

f. acid-base

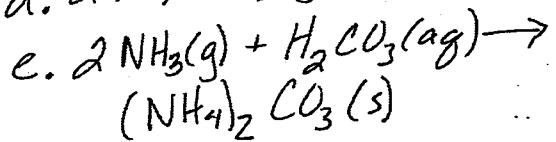
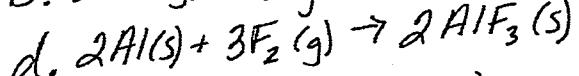
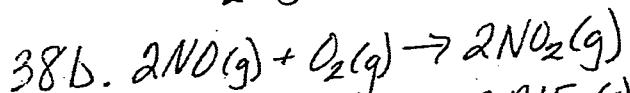
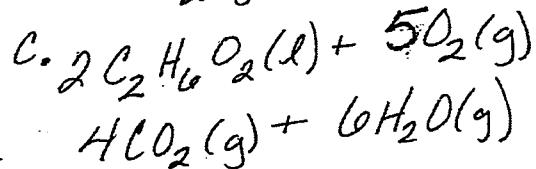
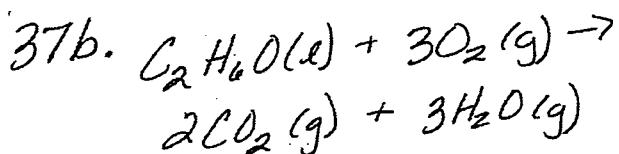
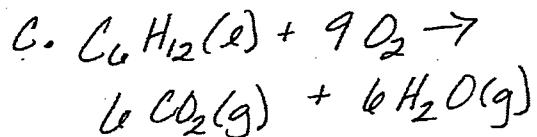
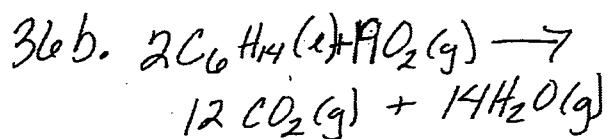
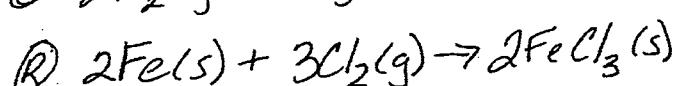
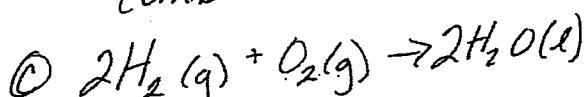
g. acid-base and precipitation

h. redox

i. precipitation

34. Many reactants produce one compound.

I + can be a redox and combustion reaction



39.b. Balanced as it is

