

Chemistry II (I) - Unit 6 Notes

Note Title

4/14/2008

Mon Apr 14/08

Unit 6 - Chemical Reactions

- Some possible evidence that a chemical change (chemical reaction) is taking place:
 - colour change
 - bubbles
 - smoke
 - energy (heat, light, sound)
 - clear \rightarrow cloudy
 - reactants used up
 - new smells
 - difficult to reverse
 - formation of solids in liquids.

(notes continued on the next page...)

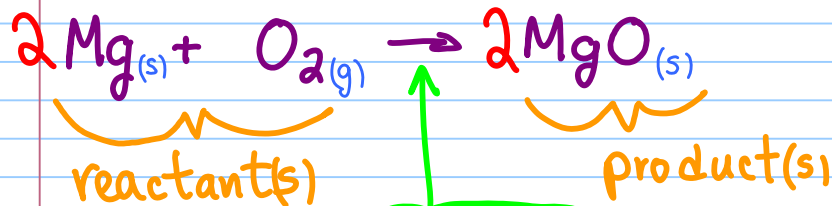
Keep going
↓

Tues Apr 15 / 08

Chemical Equations

(formulas must be correct
eg.) ionic (drop & swap)

covalent (prefixes)



reacts to
form

(s) - solid
(l) - liquid
(g) - gas
(aq) - aqueous
(water solution)

Tricks

① Even-odd trick

an odd # $\times 2$ = an even #

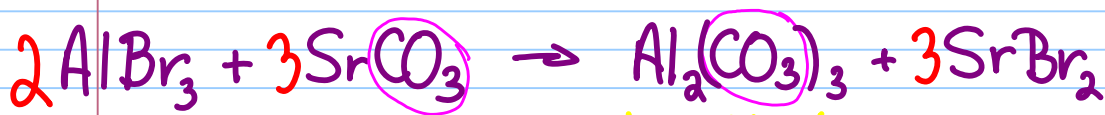
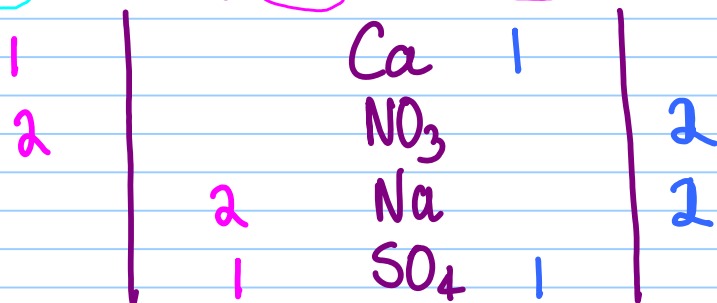
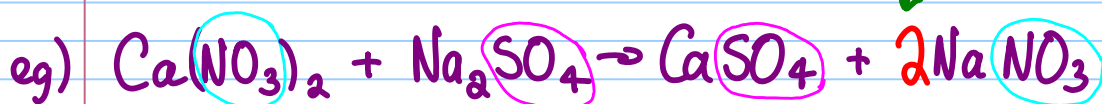


② Two-zee three-zee trick



③ Circling PAI's (groups)

↑
if identical on both sides
a PAI can be thought of as
a single "thing" coefficient



start here

Do ex. 11, 13, 14, 16, 17, 18, 20, 21, 23, 25 p 110-111

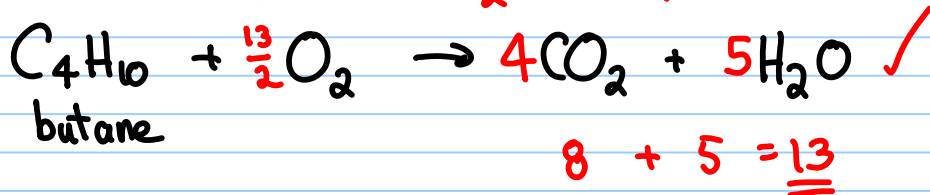
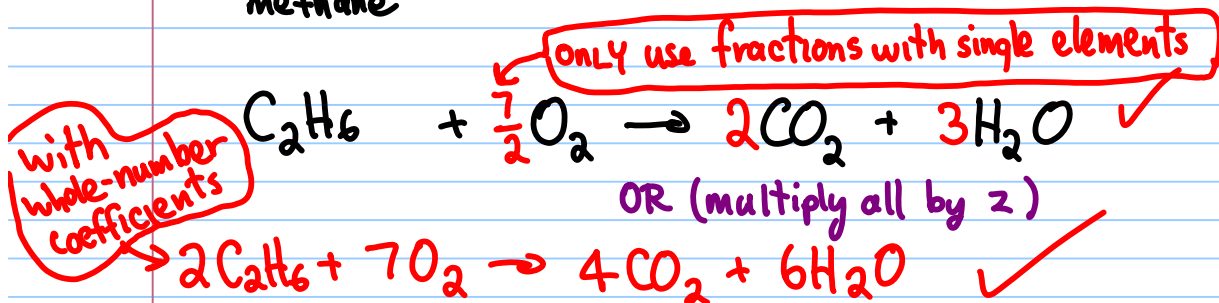
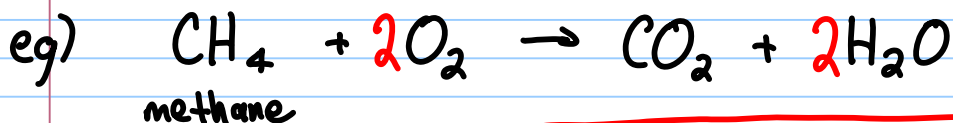
- show me due Wed Nov 14



Wed Apr 16 / 08

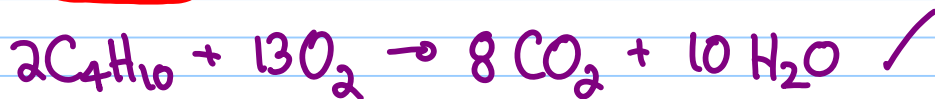
④ Balancing with C, H & O

Balance in order C then H then O

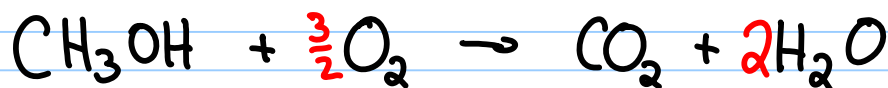


or

WNC's

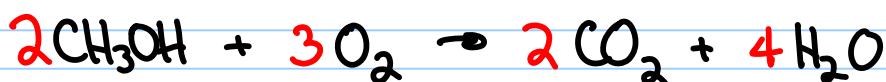


Alcohols



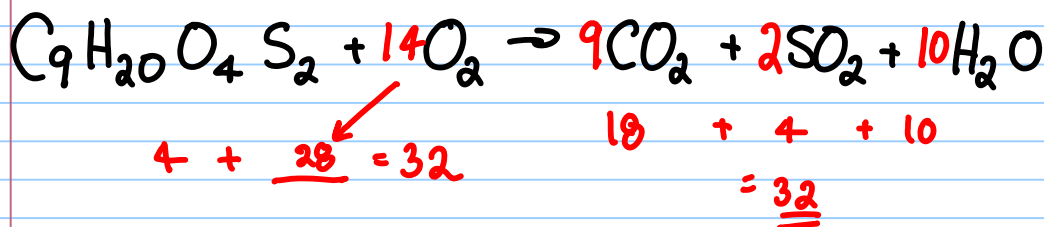
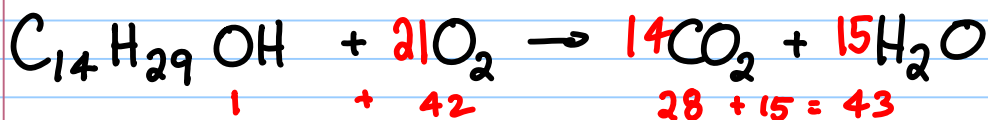
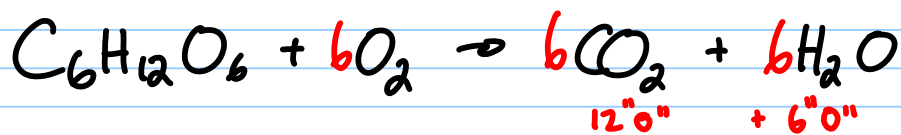
4 O's

OR



Monday Apr 21/08

Balance These:



Words → Balanced Equation

Compounds → Ionic or Covalent

↓
use charges

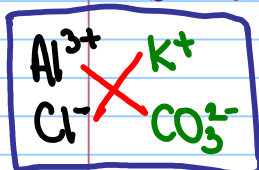
↓
use prefixes

↓
Drop & Swap

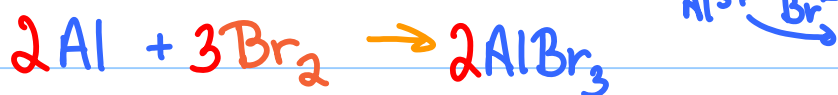
Elements → R U Diatomic?

Hallan Often Needs Halogens

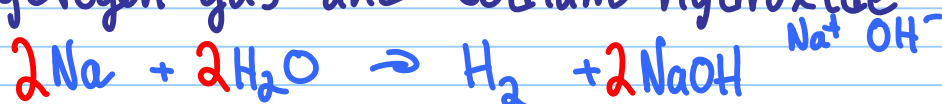
eg) aluminium chloride is mixed with potassium carbonate and aluminium carbonate and potassium chloride are formed. Write a balanced equation.



aluminum metal reacts violently with bromine to produce aluminum bromide



sodium reacts quickly with water to produce hydrogen gas and sodium hydroxide



nitrogen monoxide reacts with oxygen to produce nitrogen dioxide



magnesium sulphate heptahydrate decomposes to form water and magnesium sulphate

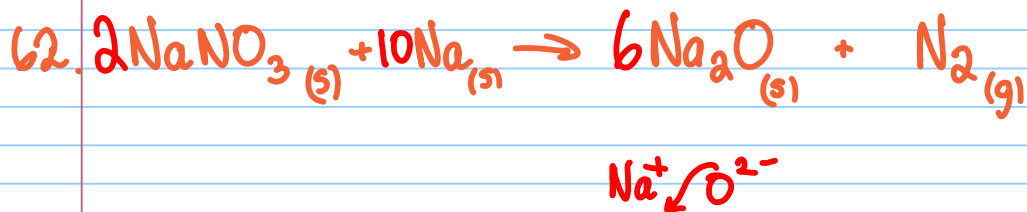
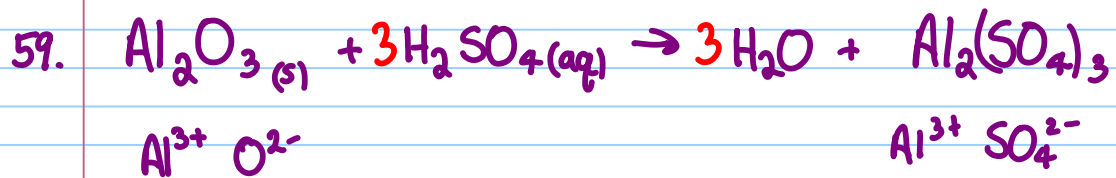
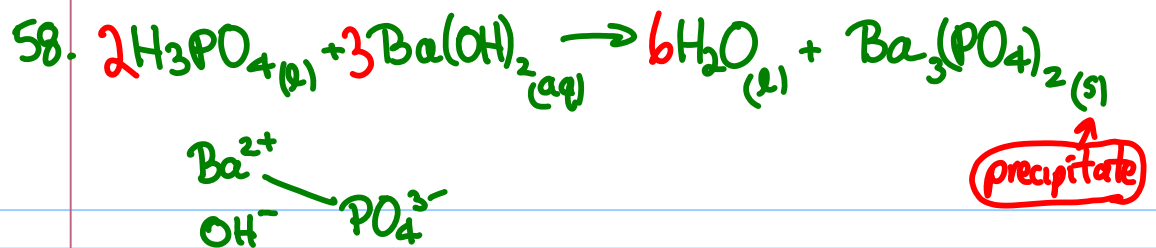


(When finished these do 58, 59, 62 & 63 on p. 114 include phases) (s) (l) (aq) (g)



Acids

HCl	hydrochloric
HNO ₃	nitric
H ₂ SO ₄	sulphuric
H ₃ PO ₄	phosphoric
CH ₃ COOH	acetic



ammonia NH_3

hydrogen peroxide H_2O_2

Tues. Apr 22/08

Types of Reactions

1. Synthesis (Combination)



often: elements \rightarrow a compound

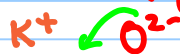
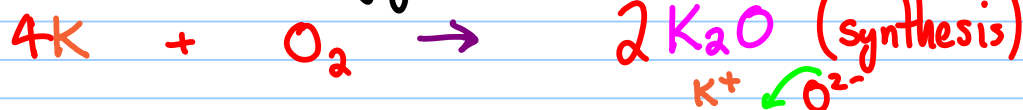


elements
RU diatomic?

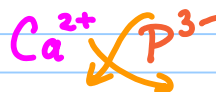
if ionic use
drop & swap



potassium + oxygen \rightarrow



calcium + phosphorus \rightarrow



A special type of synthesis



called synthesis

cobalt(II) chloride
hexahydrate

also called hydration

Also

A compound + an element \rightarrow a "bigger" compound



\leftarrow synthesis

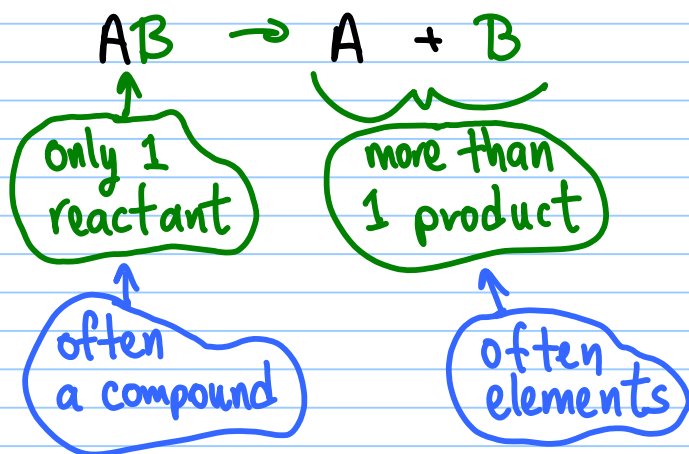
Synthesis

Always
more than
1 reactant

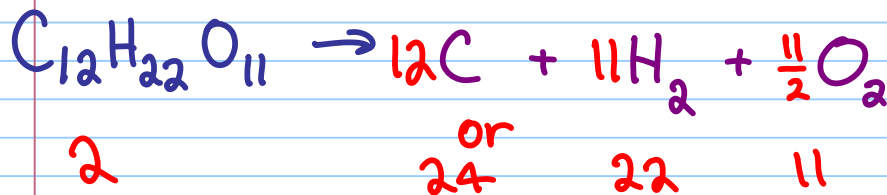
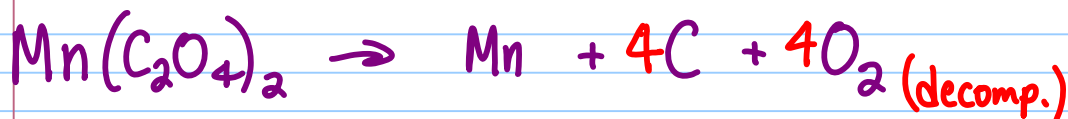
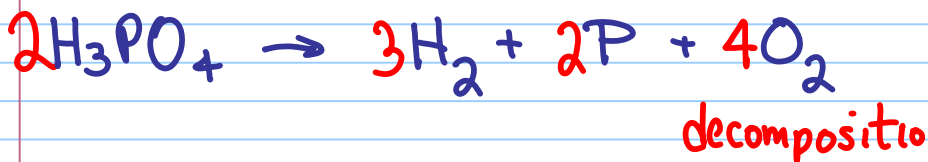


usually forms
only 1 product

2. Decomposition



NOTE: Unless otherwise told, break all compounds COMPLETELY down to its elements. (Even break up PAI's!)



A special type of decomposition



bonded together

apart

called: (decomp)

also called dehydration

Also

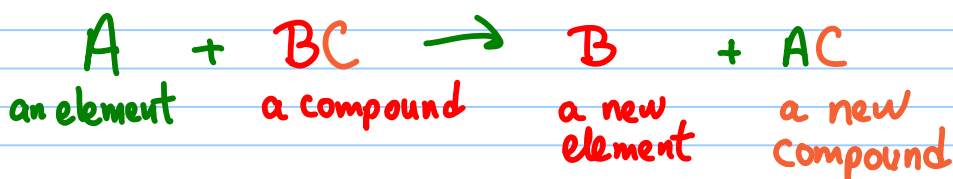
Bigger Compound \rightarrow smaller compound + an element



you would be told that it doesn't go completely to elements

3. Single Replacement

Wed Apr 23/08

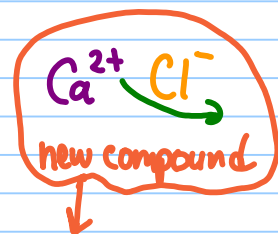
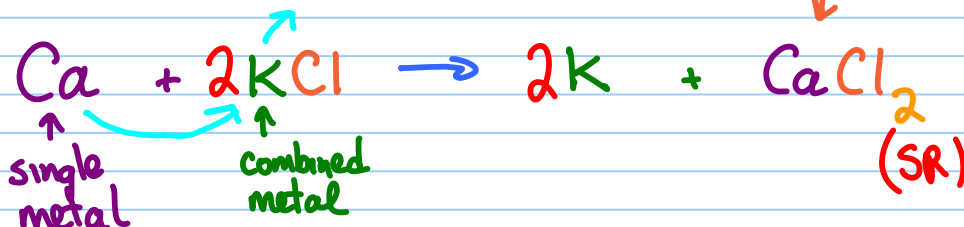


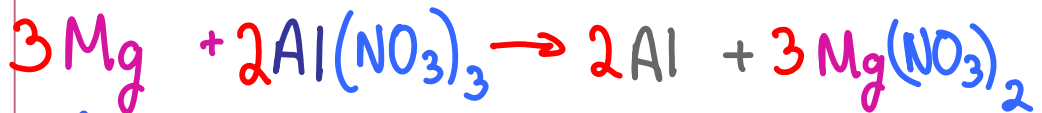
Two Types

① Metal SR

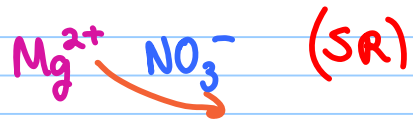
② Non-metal SR

Some Metal SR's

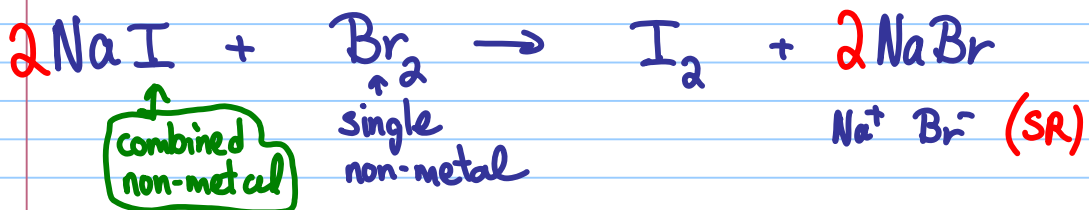
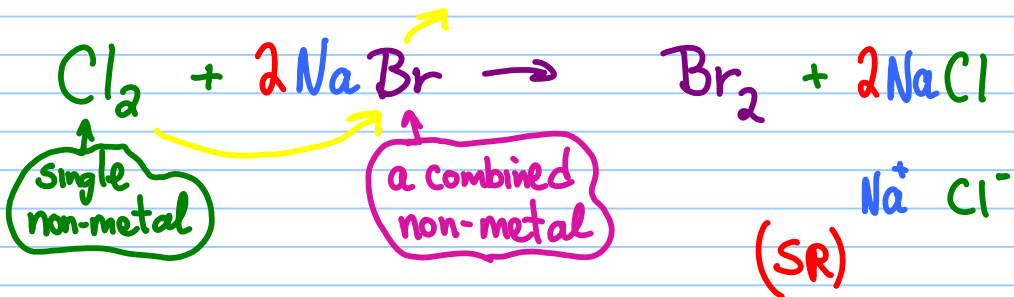




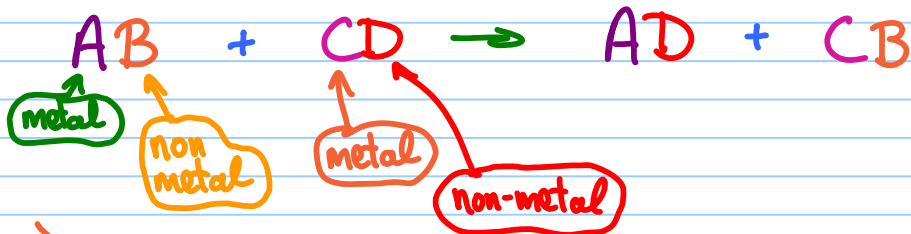
↑
single metal



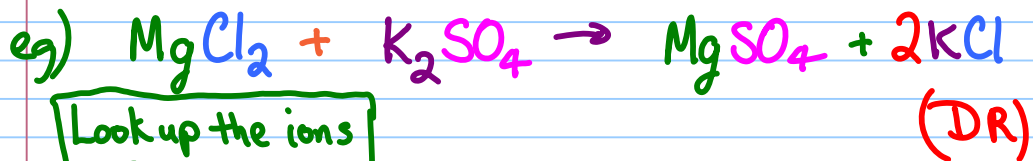
Some Non-metal SR's



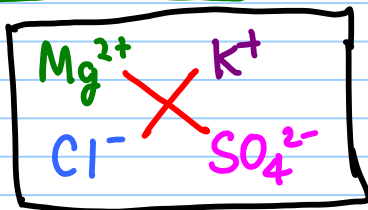
4. Double Replacement

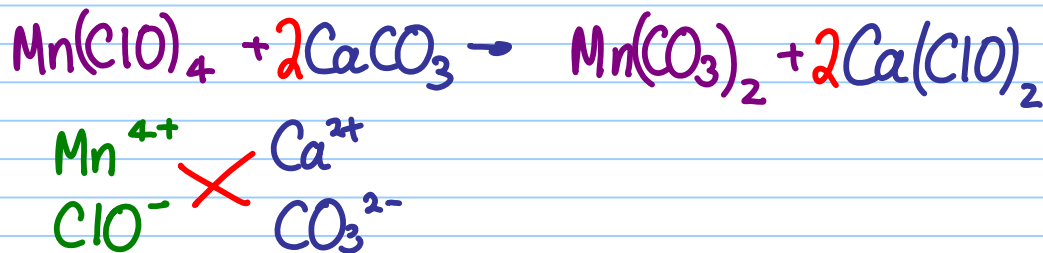
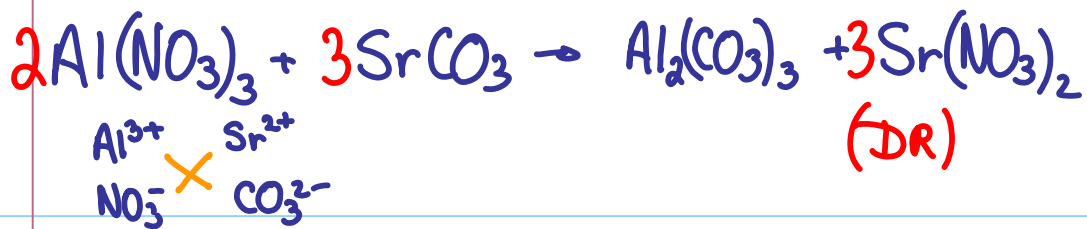


Can also be PAI's ← don't break PAI's



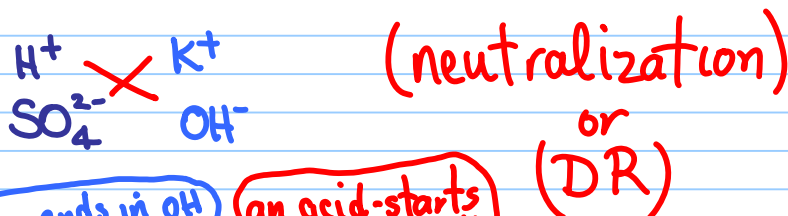
Look up the ions
LEUDMEU





5. Neutralization (a sub-type of DR)

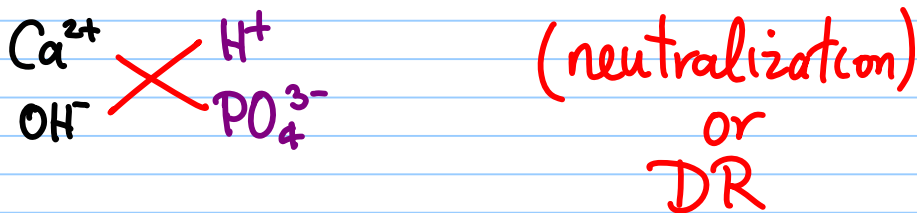
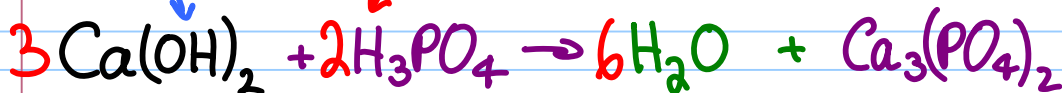
an acid + a base \rightarrow water + a salt



or
(DR)

a base - ends in OH

an acid - starts with H



or
DR

6. Combustion (Burning Stuff)

2 Types 1. Combustion of hydrocarbons

H, C sometimes
O, N, S

2. Combustion of metals

1. Hydrocarbons

NOTE: O₂ is ALWAYS A REACTANT!

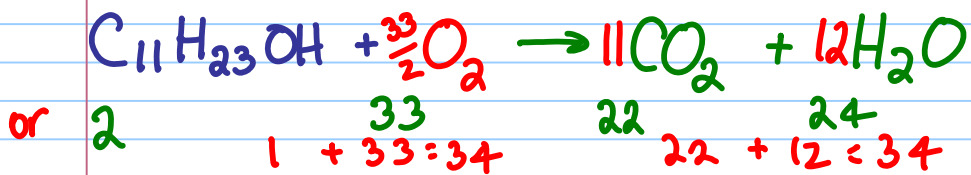
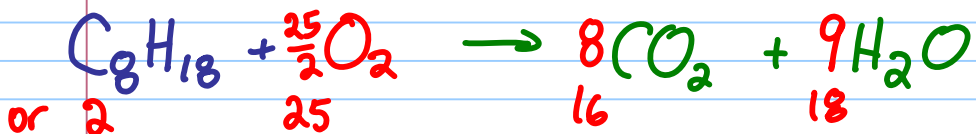
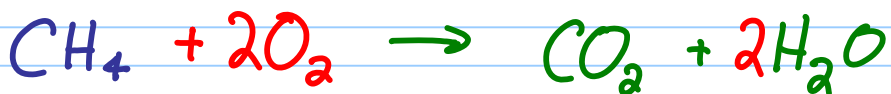
When burning hydrocarbons

ASSUME the Products are



Thurs Apr 24/08

examples (combustion)



2. Combustion of Metals (AKA synthesis)

metal + O₂ → metal oxide

