

Friday Dec 16

Answers pg 219 #2,3

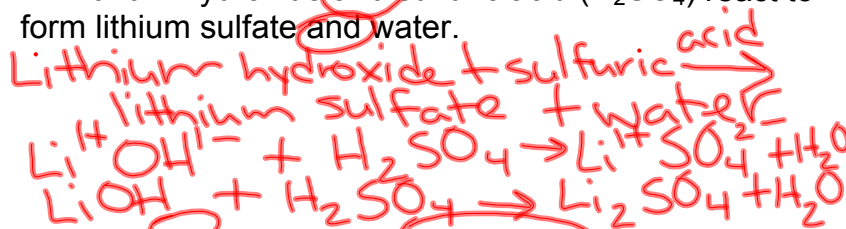
Counting Atoms

Balancing Chemical Equations

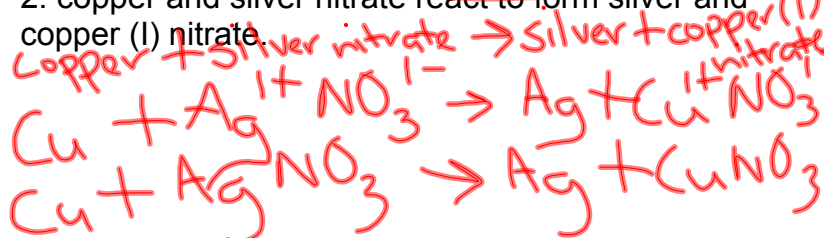
## Warm - Up

Write the word equation and chemical equation for each of the following:

1. Lithium hydroxide and sulfuric acid ( $\text{H}_2\text{SO}_4$ ) react to form lithium sulfate and water.



2. copper and silver nitrate react to form silver and copper (I) nitrate.



## pg 219 #2,3

2. a) Reactants = propane and oxygen

b) Products = carbon dioxide and water

c) the arrow is to point from the reactants to products and means produces.

reacts to form

3. a)  $\text{CaCl}_2 + \text{Na}_2\text{SO}_4 \longrightarrow \text{CaSO}_4 + \text{NaCl}$

calcium chloride + sodium sulfate  $\longrightarrow$  calcium sulfate + sodium chloride

b)  $\text{BaCO}_3 \longrightarrow \text{BaO} + \text{CO}_2$

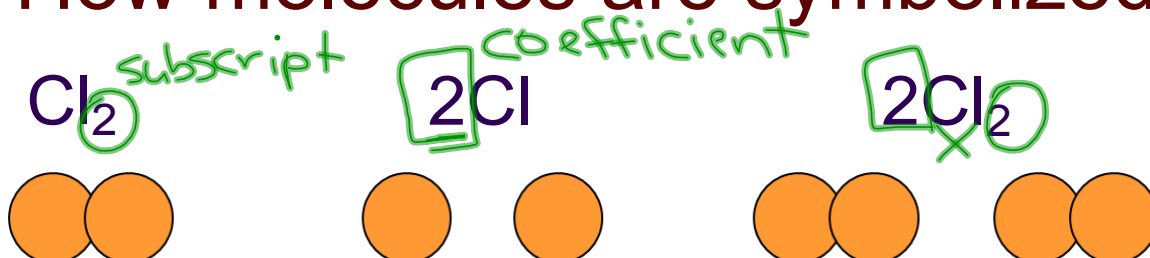
barium carbonate  $\longrightarrow$  barium oxide and carbon dioxide

c)  $\text{AgNO}_3 + \text{KCl} \longrightarrow \text{AgCl} + \text{KNO}_3$

silver nitrate + potassium chloride  $\longrightarrow$  silver chloride + potassium nitrate

In order to be able to balance equations  
1<sup>st</sup> you need to know how to count  
atoms

## How molecules are symbolized



- Molecules may also have brackets to indicate numbers of atoms. E.g.  $\text{Ca}(\text{OH})_2$
- Notice that the OH is a group
- The 2 refers to both H and O

### Blackline Master 6.5a How to Count atoms Review

Fill in the areas in red on your own sheet

1. The symbol of an element represents one atom of that element.  
e.g., Ca = 1 atom of calcium (Ca)

2. A subscript is a number written at the lower right corner behind the symbol of an element. If there is more than one atom of the element in the molecule, then a subscript is used to indicate the number of atoms.  
e.g.,  $\text{N}_2$  = 2 atoms of nitrogen (N)

3. A subscript outside a bracket multiplies all the elements inside the brackets.  
e.g.,  $\text{Ba}_3(\text{PO}_4)_2$  = 3 atoms of barium  
2 atoms of phosphorous  
8 atoms of oxygen

4. (a) A coefficient is a number written in front of a chemical symbol and indicates the number of atoms of that element.

e.g.,  $3\text{C}$  = 3 atoms of carbon  
OR

(b) A coefficient is a number written in front of a chemical formula and indicates the number of molecules of that compound.

NOTE: A coefficient multiplies the number of atoms of each element in the formula.

e.g.,  $2\text{H}_2\text{O}$  = 4 atoms of hydrogen  
2 atoms of oxygen

$3\text{FeSO}_4$  = 3 atoms of iron  
3 atoms of sulphur  
12 atoms of oxygen

$4\text{Cu}(\text{NO}_3)_2$  = 4 atoms of copper  
8 atoms of nitrogen  
24 atoms of oxygen

brackets before  
coefficients

## Counting Atoms Sheet

### Complete Back of Sheet

Type	#
Na (sodium)	2
carbon (C)	1
oxygen (O)	3