**Chapter 3**

**Stoichiometry:**

**Ratios of Combination**

**Mass % = [(mass of component)/(total mass)] x 100**



* **Equations can represent physical changes**:

KClO3(*s*) → KClO3(*l*)

or **chemical changes**

* **Note the symbol for heat above the arrow**:

Δ

2 KClO3(*s*) → 2 KCl(*s*) + 3 O2(*g*)

**Exercises:**

**(Molecular mass)/(Empirical mass) = n**

**and**

**Molecular formula = (Empirical formula)n**

* **The data given allows an empirical formula determination with just a few more steps.**

* **The mass of products (carbon dioxide and water) will be known so we work our way back.**

**Eercise**

Zn(*s*) + 2 HCl(*aq*) → ZnCl2(*aq*) + H2(*g*)

Theoretical yield = **2.14** g ZnCl2

Actual yield = **1.58** g ZnCl2

The % yield is:



**Reaction Types**

* **Combination**: one product is formed
* **Decomposition**: one reactant produces more

than one product

* **Combustion**: a hydrocarbon reacts with oxygen

to produce carbon dioxide and water