Unit 9: Stoichiometry

(stoi-kee-ahm-uh-tree)

from the Greek words:
stoicheion (**element**)
metron (**measure**)
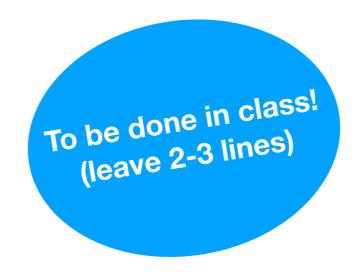
Definitions

Stoichiometry: the study of the quantitative relationships that can be derived from chemical formulas and equations.
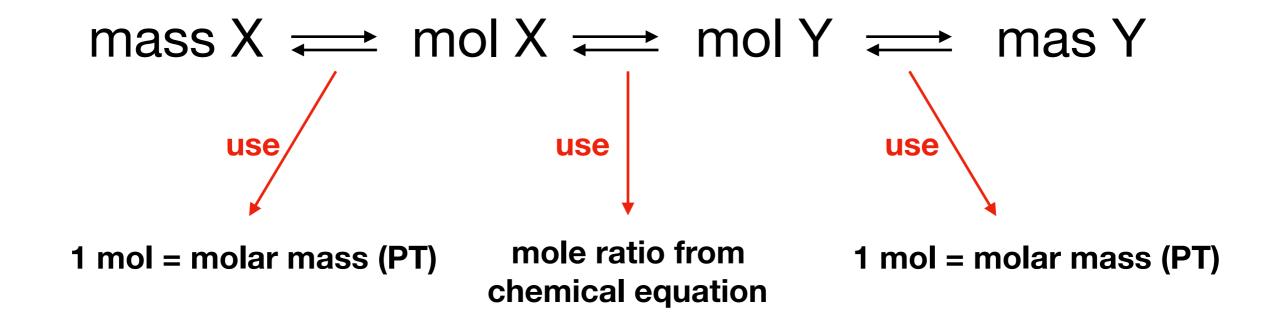
Mole Ratio: the ratio between the numbers of moles of any two substances in a balanced chemical equation.

Mole Ratio Examples:

$$\underline{2}\ \text{Mg} + \underline{\ \ }\ O_2 \longrightarrow \underline{2}\ \text{MgO}$$

To be done in class!
(leave 2-3 lines)

Stoichiometric Calculations

mass X $\rightleftharpoons$ mol X $\rightleftharpoons$ mol Y $\rightleftharpoons$ mas Y

use

use

use

1 mol = molar mass (PT)

mole ratio from chemical equation

1 mol = molar mass (PT)

*Note: all stoichiometry problems must start with a <u>balanced equation</u>!

Practice: Mole to Mole

2 Mg + __ O$_2$ ⟶ 2 MgO

3.80 mol O$_2$ = _____ mol MgO

To be done in class!
(leave 2 lines)

Practice: Mole to Mass

$\underline{2}$ **Mg** + __ **O$_2$** ⟶ $\underline{2}$ **MgO**

5.45 mol O$_2$ = _____ g Mg

*To be done in class!
(leave 2 lines)*

Practice: Mass to Mole

$$\underline{2} \text{ Mg} + \underline{} \text{ O}_2 \longrightarrow \underline{2} \text{ MgO}$$

4.3 g O$_2$ = _____ mol MgO

To be done in class!
(leave 2 lines)

Practice: Mass to Mass

2 Mg + __ O$_2$ ⟶ 2 MgO

30.56 g Mg = ____ g O$_2$

To be done in class!
(leave 2 lines)