Unit 7 – Ch 12 – Stoichiometry

REVIEW OF MOLE CONVERSIONS:

- 1) 1 mole = _____
  - _____ → *Elements*
  - _____ → *Covalent Compounds*
  - _____ → *Ionic Compounds*
  - _____ → *Charged particles of formula units (F.U.)*
- 2) 1 mole = _____
  - Unit: _____

STOICHIOMETRY:

- **DEFINITION –**

- **NEW RATIO:** _____
  - Mole ***coefficient*** of _____ substance = Mole ***coefficient*** of _____
    - Requires a _____ chemical ***equation***.
- **MOLE RATIO: APPLICATION**
  - ____ $Mg_{(s)}$ + ____ $O_{2\,(g)}$ → ____ $MgO_{(s)}$
    - Mole Ratios: ____ mol Mg = ____ mol O_2

      ____ mol Mg = ____ mol MgO

      ____ mol O_2 = ____ mol MgO

    - **NEEDED:** ***Balanced*** _____ indicate _____ of _____ *AND* _____.

Unit 6 – MOLE CONVERSIONS

- Starting substance is _____ as wanted substance.
- _____ balanced chemical equation.
- _____ diagram *(simplified)*

Unit 7 - STOICHIOMETRY

→ Starting substance is _____ from wanted substance.
→ Balanced chemical equation _____.
→ _____ diagram *(Expanded)*

Ex #1) *Mole* <--> *Mole* Stoich (2-step)
How many moles of nitrogen gas are needed to react with hydrogen gas to produce 1.50 moles of ammonia gas (NH_3)?

Ex #2) *Mole* <--> *Mass* Stoich (3-step)
How many grams of ammonium sulfate are produced from a reaction of 3.75 moles of sulfuric acid and ammonia gas?

Ex #3) *Mole* <--> *Particle* Stoich (3-step)
In the combustion of pentane, C_5H_{12} , how many molecules of carbon dioxide are produced from 5.35 x 10^{24} moles of pentane?

Ex #4) *Mass* <--> *Mass* Stoich (4-step)
How many grams of nitrogen gas are needed to react with hydrogen gas to produce 5.35 grams of ammonia gas?

Ex #5) *Mass* <--> *Particle* Stoich (4-step)
How many formula units of aluminum bromide are produced by the neutralization of 3.50 grams of hydrobromic acid and aluminum hydroxide?

Ex #6) *Particle* <--> *Particle* Stoich (4-step)
How many formula units of lead (II) phosphate are produced by a single replacement reaction of 3.50 atoms of lead metal and phosphoric acid?