Unit 6: Ch 11 – The Mole: A Measurement of Matter

WHAT IS A *MOLE*?:

- **Mole** (_____) →
  - _____ → _____
- **What are "PARTICLES" ?**
  - 1) _____ → Individual _____
  - 2) _____ → _____ *(Br_2 I_2 N_2 Cl_2 H_2 O_2 F_2)* ***AND*** _____ compounds (_____).
  - 3) _____ → _____ compounds (_____).

CALCULATING *MOLAR MASS*:

- **DEFINITION** →
  - UNIT: _____
- 1. Write the correct _____.
  - Ex #1) Iron → _____
  - Ex #2) Sulfur Trioxide → _____
  - Ex #3) Magnesium Phosphate → _____
- 2. *ADD* the _____ of *ALL* the _____ in the substance.
  - Ex #1) Fe → Molar Mass = _____
  - Ex #2) SO_3 → Molar Mass = _____
  - Ex #3) $Mg_3(PO_4)_2$ → Molar Mass = _____

"2-STEP" MOLE CONVERSIONS: *MOLES <--> PARTICLES*

- **NEEDED:** _____ ***"PARTICLES"*** of that _____ substance.
    - ***Particles → Mole***
        - Ex #1) How many moles are in 1.25×10^{23} atoms of magnesium?
    - ***Mole → Particles***
        - Ex #2) How many molecules are in 4.65 moles of silicon difluoride?

"2-STEP" MOLE CONVERSIONS: *MOLES <--> MASS*

- **NEEDED:** _____ ***(g/mol)*** of that _____ substance.
    - ***Mass → Mole***
        - Ex #3) 248 grams of sodium sulfide is equal to how many moles of sodium sulfide?
    - ***Mole → Mass***
        - Ex #4) How many grams are in 4.43 moles of copper (II) nitrate?

"3-STEP" MOLE CONVERSIONS: *PARTICLES <--> MASS*

- **NEEDED:** ***BOTH*** _____ ***AND*** _____.
    - ***Particles → Mass***
        - Ex #5) What mass is in 3.68 molecules of carbon dioxide?
    - ***Mass → Particles***
        - Ex #6) How many magnesium bromide formula units are in 3.98 grams?