Introduction To Stoichiometry

What is Stoichiometry?

• **Definition**: Stoichiometry is the branch of chemistry that deals with the relationships between the quantities of reactants and products in a chemical reaction.

Key Concepts

- 1. Chemical Equations:
 - Represent chemical reactions using symbols and formulas.
 - Example: $2H_2+O_2 \rightarrow 2H_2O$
- 2. Moles:
 - A mole is a unit used to measure the amount of a substance.
 - 1 mole = 6.022×10^{23} particles (Avogadro's lumoer).
- 3. Molar Mass:
 - The mass of one mole on substance (in grams).
 - Example: Wate (H_2O) has a motor mass of about 18 g/mol
 - (21000 + 16 for Q) C

4. Converting Between Moles and Grams:

- $_{\circ}$ To find grams from moles: grams=moles×molar mass
- To find moles from grams: moles=grams/molar mass

5. Using Mole Ratios:

- Mole ratios come from the coefficients in a balanced chemical equation.
- Example: From the equation 2H2+O2→2H2O, the ratio of H₂ to H₂O is 2:2 (or 1:1).

6. Calculating Reactants and Products:

- Use mole ratios to find out how much of one substance is needed or produced.
- Example: If you have 4 moles of H₂, you can produce 4 moles of H₂O using the ratio 2:2.

Steps for Stoichiometric Calculations