

Stoichiometry Unit (Math of Chemistry)
Review Sheet

1. Calculating Gram Formula Mass (Molecular Mass/ Molar Mass)

Make a table

Element	Quantity	Mass	Total Element Mass

Add all total element masses together to get mass of a compound

2. PERCENT COMPOSITION CALCULATIONS:

Determine the percentage of any element in a compound by using the formula:

$$\% \text{ COMPOSITION} = \frac{\text{Mass of part}}{\text{Mass of whole}} \times 100$$

***** Formula given on
REFERENCE TABLE T**

4. Molecular formula of a compound can be determined from the empirical formula and molecular mass:

$$\frac{\text{Molecular formula}}{\text{Empirical Formula}} = \frac{\text{Molecular Mass}}{\text{Empirical Mass}}$$

5. 1 mole = 22.4 liters (of any gas at STP) = gram formula mass (gfm) = 6.02×10^{23} particles

6. Density = mass/volume (Reference Table T)

$$\text{Density of 1 mole of a gas at STP} = \text{molecular mass}/22.4 \text{ liters}$$

7. Avogadro's Law states: **Equal volumes of different gases at the same temperature and pressure contain the same number of molecules.**

8. In a chemical equation, reactants are on the right of the arrow, products on the left. Balance chemical equations by atom counting (conservation of mass).

9. Identify the chemical reactions as synthesis, decomposition, single replacement, double replacement and combustion.

10. Coefficients of a correctly balanced equation can express moles, or molecule ratio. Using a balanced chemical reaction enables you to perform many mole related calculations.

11. Mole Problems involving a balanced chemical equation:

- Convert all information given to moles
- **Perform a mole to mole conversion using proportions**
- Convert answer into units requested