- Molarity (M) = $\frac{\text{Moles of solute}}{\text{Volume of solution in litre}}$ [Unit: mol l^{-1}]
- Molality (m) = $\frac{\text{moles of solute}}{\text{mass of solvent (in kg)}}$ [Unit: mol kg^{-1}]
- Mole fraction (X_{solute}) = $\frac{n_{solute}}{n_{solute} + n_{solvent}}$
- Mass percentage (% w/w) = $\frac{\text{mass of solute}}{\text{mass of solution}} \times 100$
- Volume percentage (% V/V) = $\frac{\text{Volume of solute/component}}{\text{Total volume of solution}} \times 100$
- % w/v = $\left(\frac{\text{mass of solute (in gm)}}{\text{Volume of solution (in ml)}}\right) \times 100$

  ⇓ Mass by Volume Percentage
- Parts per million = $\frac{\text{Number of parts of the component}}{\text{Total number of parts of all components of the solution}} \times 10^6$
- $P_{gas} = K_H X_{gas}$ in liquid

  K_H: Henry constant (atm)
- **Raoult law**

  $\Rightarrow P_{Total} = P_A^\circ X_A + P_B^\circ X_B$

  $\Rightarrow P_A = P_T Y_A = P_A^\circ X_A$

  $\Rightarrow \frac{1}{P_T} = \frac{Y_A}{P_A^\circ} + \frac{Y_B}{P_B^\circ}$.
- **For Vapour Pressure of Mixture of 2 insoluble liquids**

  $\frac{W_A}{W_B} = \frac{P_A^\circ M_A}{P_B^\circ M_B}$ where W_A = mass of A in gas phase, M_A = GMM (gram molecular mass) of A