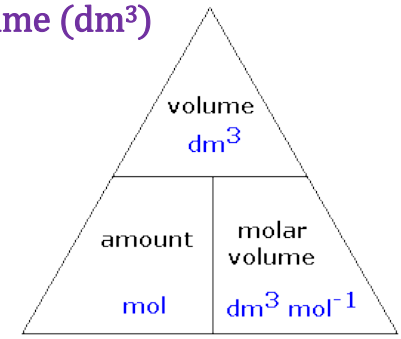
Chemical mathematical equations

Moles = Molar volume (dm^3mol^{-1}) X Volume (dm^3)

e.g. How many moles are there in 200 m^3 of Hydrogen gas at RTP?

$200m^3$ (*1000) → $2.0 *10^5$ dm^3 At RTP Mv = 24.0 dm^3mol^{-1}

$2.0 *10^5 / 24 = 8330$ mol (3s.f.)

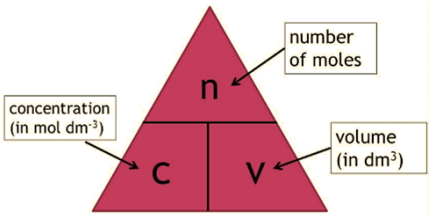


Concentration ($moldm^{-3}$) = Moles / Volume

e.g. How many moles of HCL in 1.5 litres of 2.3 M solution?

1 litre = 1 dm3 `M' means molarity = concentration ($moldm^{-3}$)

N = 1.5 * 2.3 = 3.5 mol (2 s.f.)

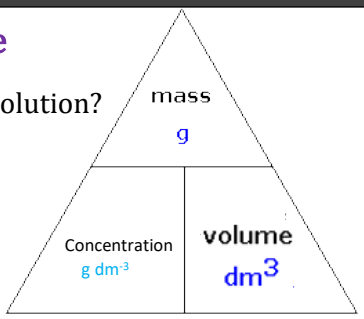


Concentration (gdm^{-3}) = Mass / Volume

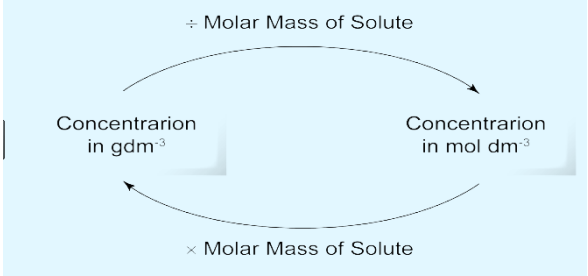
e.g. What is the concentration of 20g of barium chloride dissolved in a $100cm^3$ solution?

$100cm^3 = 0.1$ dm^3

Conc (g/dm^{-3}) = 20 / 0.1
= 200 g dm^{-3}



Converting between concentrations



Converting volumes or areas