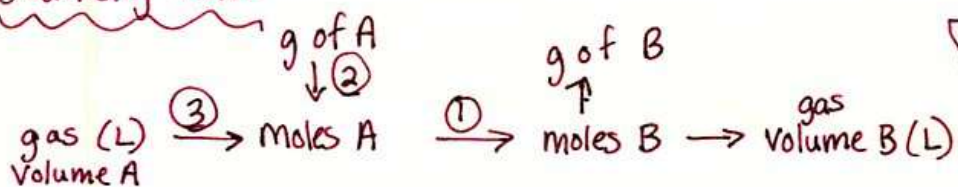


Chemistry Notes



① D.A. using coefficients from balanced equation

Dimensional Analysis

$$10 \text{ mol A} \times \left(\frac{x \text{ mol B}}{y \text{ mol A}} \right)$$

② D.A. using molar mass from periodic table;

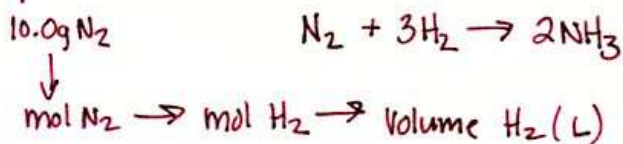
$$1 \text{ mol} = \text{molar mass in g} \\ \left(\frac{1 \text{ mol}}{\text{molar mass}} \right) \text{ or } \left(\frac{\text{molar mass}}{1 \text{ mol}} \right)$$

③ If at STP, D.A. using $1 \text{ mol A} = 22.4 \text{ L A}$

If not at STP, use $PV = nRT$

* make sure you use correct units *
(L, K, atm)

Example:



$$10.0 \text{ g N}_2 \times \left(\frac{1 \text{ mol N}_2}{28.02 \text{ g N}_2} \right) = 0.357 \text{ mol N}_2$$

$$0.357 \text{ mol N}_2 \times \left(\frac{3 \text{ mol H}_2}{1 \text{ mol N}_2} \right) = 1.07 \text{ mol H}_2$$

$$25^\circ\text{C} = 298\text{K}$$

$$735 \text{ mmHg} \times \left(\frac{1 \text{ atm}}{760 \text{ mmHg}} \right) = 0.967 \text{ atm}$$

$$\begin{aligned} V &= \frac{nRT}{P} \\ &= \frac{(1.07 \text{ mol}) \left(0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}} \right) (298\text{K})}{0.967 \text{ atm}} \\ &= 27.1 \text{ L H}_2 \end{aligned}$$