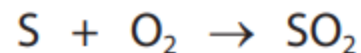


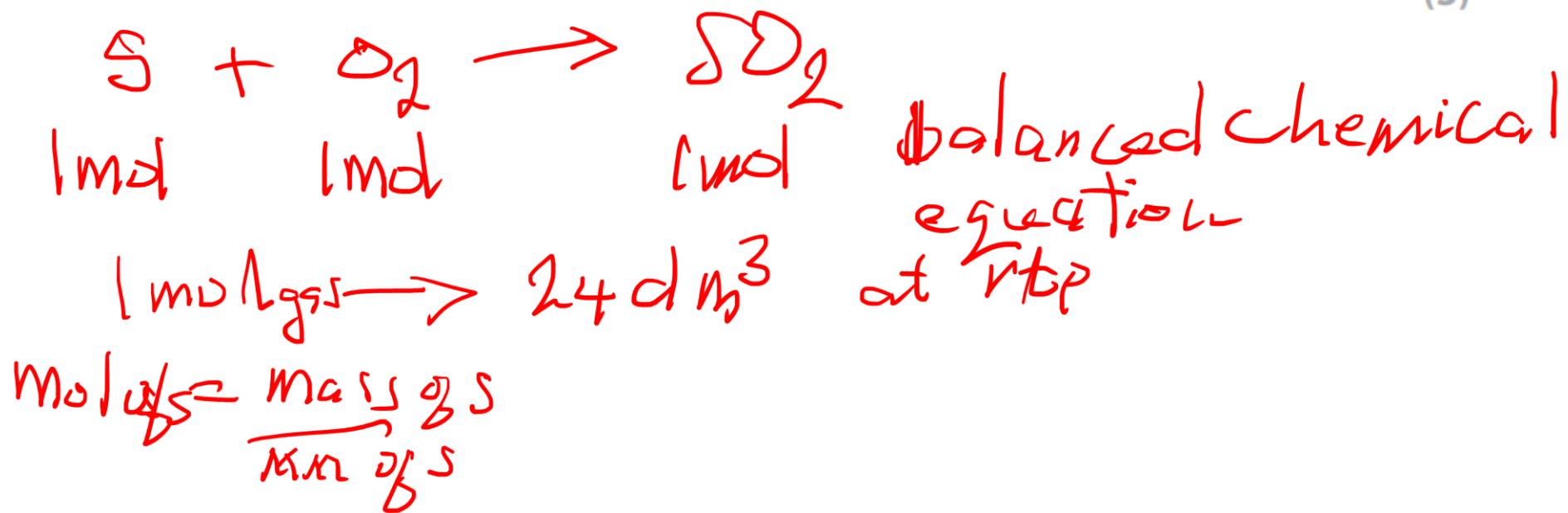
(ii) When the fuel burns, the 600 g of sulfur produces sulfur dioxide gas.



Calculate the volume, in cm^3 , of sulfur dioxide gas that would be produced at room temperature and pressure (rtp) when the fuel burns.

[for a gas, molar volume = 24 dm^3 at rtp]

(3)



$$\text{mol} = \frac{600\text{g}}{32\text{g/mol}} = \underline{\underline{18.75\text{ mol}}}$$

Mole Ratio



$$18.75\text{mol}$$

— 2x

$$x = 18.75\text{mol of SO}_2$$

$$1\text{mol} = 24\text{dm}^3$$

$$18.75\text{mol} = x$$

$$\Rightarrow x = 24 \times 18.75$$

$$= \underline{\underline{450\text{ dm}^3 \text{ of SO}_2}}$$