

## MOLAR VOLUME CALCULATION

Paper: 2CR

Question: 7(c)

### Example 1

Your mark

$$\begin{aligned}
 10 \text{ tonnes} &= 10\,000\,000 \text{ g} \\
 n = \frac{m}{M} &= \frac{10\,000\,000}{12 + 1 \times 4} = 625\,000 \text{ mol} \\
 625\,000 \times 3 &= 1\,875\,000 \text{ mol} \\
 1\,875\,000 \times 24 &= 78\,125 \text{ dm}^3
 \end{aligned}$$

volume of hydrogen = 78125 dm<sup>3</sup>

### Example 2

Your mark

$$\frac{1 \times 10^7}{12 + 4} = 625\,000$$

$$625\,000 \times 2 = 1\,250\,000 \times 3 =$$

$$3\,750\,000$$

$$3\,750\,000 = \frac{V}{24}$$

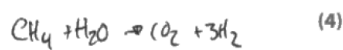
$$V = 3\,750\,000 \times 24 = 90\,000\,000 = 9.0 \times 10^7$$

volume of hydrogen = 9.0 × 10<sup>7</sup> dm<sup>3</sup>

### Example 3

Your mark

$$\text{Volume} = \text{moles} \times 24 \text{ dm}^3$$



$$1 \text{ ton} = 1000 \text{ kg}$$

$$1 \text{ kg} = 1000 \text{ g}$$

$$0,000 \text{ kg} = 100000000 \text{ g}$$

$$n = \frac{m}{M} = \frac{100\,000\,000}{1} = 100\,000\,000 \text{ mol}$$

$$100\,000\,000 \times 24$$

$$= 2\,400\,000\,000 \text{ dm}^3 = 2.4 \times 10^9$$

$$= 2.4 \times 10^8$$

volume of hydrogen = 2.4 × 10<sup>8</sup> dm<sup>3</sup>