

Solutions

2.1 The same number of moles.

2.2 45 cm^3 .

2.3 50 cm^3 .

3.1 $\text{O}_2 = 5 \times 50 = 250 \text{ cm}^3$; $\text{CO}_2 = 3 \times 50 = 150 \text{ cm}^3$.

3.2 Ratio $\text{H}_2 : \text{O}_2 = 2 : 1$; $100 \text{ cm}^3 \text{ H}_2$ needs $50 \text{ cm}^3 \text{ O}_2$ exactly; neither is in excess / both fully react; steam volume = 100 cm^3 .

3.3 Oxygen needed = $13/2 \times 200 = 1300 \text{ cm}^3$; air is 20 % oxygen; air volume = $1300 \div 0.20 = 6500 \text{ cm}^3$.