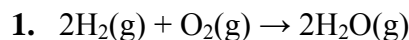
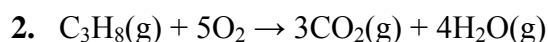


CHAPTER 7	Law of Combining Volumes Answer Key	BLM 7.2.8A
ANSWER KEY		



(a) $n_{\text{H}_2} = 3.4 \text{ mol O}_2 \times \frac{2 \text{ mol H}_2}{1 \text{ mol O}_2} = 6.8 \text{ mol H}_2(\text{g})$

(b) $V_{\text{H}_2\text{O}} = 9.4 \text{ L O}_2 \times \frac{2 \text{ L H}_2\text{O}}{1 \text{ L O}_2} = 18.8 \text{ L H}_2\text{O}(\text{g})$

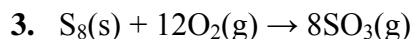


(a) $V_{\text{C}_3\text{H}_8} = 2.36 \text{ L H}_2\text{O} \times \frac{1 \text{ L C}_3\text{H}_8}{4 \text{ L H}_2\text{O}} = 0.59 \text{ L C}_3\text{H}_8(\text{g})$

(b) $n_{\text{O}_2} = 35.8 \text{ mol CO}_2 \times \frac{5 \text{ mol O}_2}{3 \text{ mol CO}_2} = 59.7 \text{ mol O}_2(\text{g})$

(c) $V_{\text{CO}_2+\text{H}_2\text{O}} = 9.53 \text{ L C}_3\text{H}_8 \times \frac{3 \text{ L CO}_2 + 4 \text{ L H}_2\text{O}}{1 \text{ L C}_3\text{H}_8} = 66.7 \text{ L CO}_2(\text{g}) + \text{H}_2\text{O}(\text{g})$

The total volume of products that would form if 9.53 L of propane reacted with oxygen would be 66.7 L.



(a) $V_{\text{SO}_3} = 0.65 \text{ L O}_2 \times \frac{8 \text{ L SO}_3}{12 \text{ L O}_2} = 0.43 \text{ L SO}_3(\text{g})$

(b) $n_{\text{O}_2} = 1.56 \text{ mol SO}_3 \times \frac{12 \text{ mol O}_2}{8 \text{ mol SO}_3} = 2.34 \text{ mol O}_2(\text{g})$

(c) You would need to know the temperature and pressure at which the $\text{SO}_3(\text{g})$ was forming in order to find the number of moles of sulfur needed to react.