

Quiz 6.4 – Hess's Law

Name: Key

Question 1 (2 points)

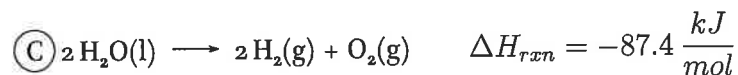
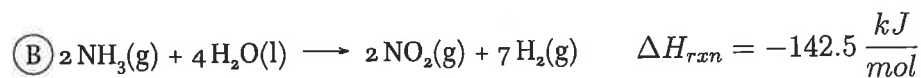
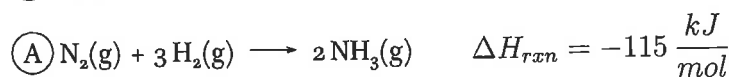
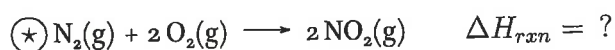
Consider the reaction: $\text{H}_2\text{S}(\text{g}) + 2 \text{O}_2(\text{g}) \longrightarrow \text{H}_2\text{SO}_4(\text{l}) \quad \Delta H_{\text{rxn}} = -235.5 \frac{\text{kJ}}{\text{mol}}$

Find ΔH_{rxn} for the reaction: $2 \text{H}_2\text{SO}_4(\text{l}) \longrightarrow 2 \text{H}_2\text{S}(\text{g}) + 4 \text{O}_2(\text{g})$

$$\Delta H_{\text{rxn}} = -2 \cdot (-235.5 \frac{\text{kJ}}{\text{mol}}) = 471.0 \frac{\text{kJ}}{\text{mol}}$$

Question 2 (3 points)

Find ΔH_{rxn} for reaction (\star) using reactions (A) , (B) , and (C)



$$(\star) = (\text{A}) + (\text{B}) - 2(\text{C})$$

$$\Delta H_{\text{rxn}} = -115 \frac{\text{kJ}}{\text{mol}} - 142.5 \frac{\text{kJ}}{\text{mol}} - 2 \cdot (-87.4 \frac{\text{kJ}}{\text{mol}}) = -82.7 \frac{\text{kJ}}{\text{mol}}$$