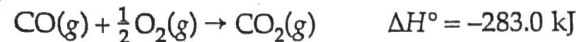
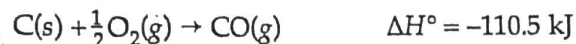


12-3 Practice Problems (Hess' Law)

Key

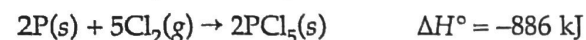
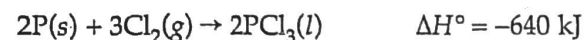
1. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $\text{C(s)} + \text{O}_2\text{(g)} \rightarrow \text{CO}_2\text{(g)}$.

$$\Delta H_{\text{rxn}} = 393.5 \text{ kJ}$$

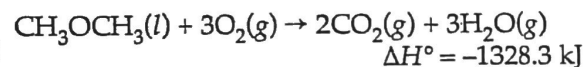
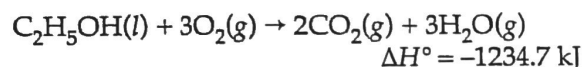
2. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $\text{PCl}_3\text{(l)} + \text{Cl}_2\text{(g)} \rightarrow \text{PCl}_5\text{(s)}$.

$$\Delta H_{\text{rxn}} = 123 \text{ kJ}$$

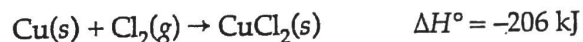
3. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $\text{C}_2\text{H}_5\text{OH(l)} \rightarrow \text{CH}_3\text{OCH}_3\text{(l)}$.

$$\Delta H_{\text{rxn}} = 93.6 \text{ kJ}$$

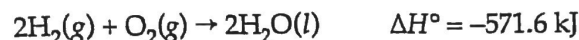
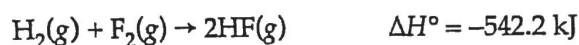
4. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $\text{CuCl}_2\text{(s)} + \text{Cu(s)} \rightarrow 2\text{CuCl(s)}$.

$$\Delta H_{\text{rxn}} = 70 \text{ kJ}$$

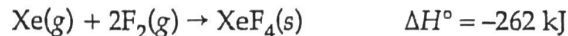
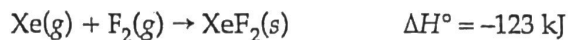
5. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $2\text{F}_2\text{(g)} + 2\text{H}_2\text{O(l)} \rightarrow 4\text{HF(g)} + \text{O}_2\text{(g)}$.

$$\Delta H_{\text{rxn}} = -512.8 \text{ kJ}$$

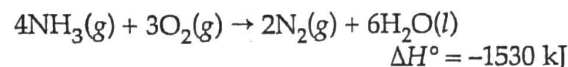
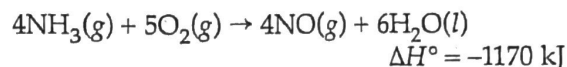
6. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $\text{XeF}_2\text{(s)} + \text{F}_2\text{(g)} \rightarrow \text{XeF}_4\text{(s)}$.

$$\Delta H_{\text{rxn}} = -139 \text{ kJ}$$

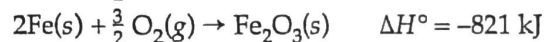
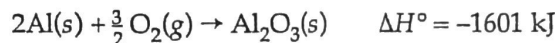
7. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $\text{N}_2\text{(g)} + \text{O}_2\text{(g)} \rightarrow 2\text{NO(g)}$.

$$\Delta H_{\text{rxn}} = 180 \text{ kJ}$$

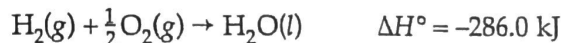
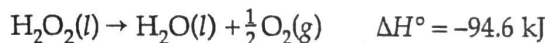
8. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $2\text{Al(s)} + \text{Fe}_2\text{O}_3\text{(s)} \rightarrow 2\text{Fe(s)} + \text{Al}_2\text{O}_3\text{(s)}$.

$$\Delta H_{\text{rxn}} = -780 \text{ kJ}$$

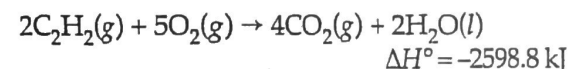
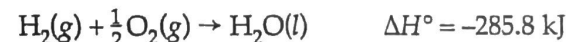
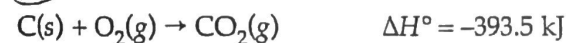
9. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $\text{H}_2\text{(g)} + \text{H}_2\text{O}_2\text{(l)} \rightarrow 2\text{H}_2\text{O(l)}$.

$$\Delta H_{\text{rxn}} = -380.6 \text{ kJ}$$

10. From the following enthalpy changes,



calculate the value of ΔH° for the reaction
 $2\text{C(s)} + \text{H}_2\text{(g)} \rightarrow \text{C}_2\text{H}_2\text{(g)}$.

$$\Delta H_{\text{rxn}} = 226.6 \text{ kJ}$$