

**CHEM 3530**  
**Chapters 3 - Homework Answers**

3.1  $q = 39.0 \text{ kJ}$ ,  $w = -3.1 \text{ kJ}$ ,  $\Delta U = 35.9 \text{ kJ}$ ,  $\Delta H = 39.0 \text{ kJ}$

3.2  $\Delta H = -248 \text{ kJ}$

3.3  $\Delta_c H^\circ = -4564.5 \text{ kJ}$

3.4  $\Delta U^\circ = -432 \text{ kJ}$

3.5  $\Delta_f H^\circ = +79 \text{ kJ}$

3.6 (a)  $\Delta_c U^\circ = -1333 \text{ kJ/mol}$

(b)  $\Delta_c H^\circ = -1331 \text{ kJ}$

(c)  $\Delta_f H^\circ = 815 \text{ kJ/mol}$

3.7 (a) exothermic,  $\Delta H^\circ < 0$

(b) endothermic,  $\Delta H^\circ > 0$

(c) endothermic,  $\Delta H^\circ > 0$

(d) endothermic,  $\Delta H^\circ > 0$

(e) endothermic,  $\Delta H^\circ > 0$

3.8  $\Delta H = +11.3 \text{ kJ}$

3.9  $\Delta H = +198.3 \text{ kJ}$

3.10  $FV = 41.9 \text{ kJ/g}$

3.11  $\Delta_{\text{comb}} H^\circ = -975 \text{ kJ/mol}$

3.12  $FV = +33.7 \text{ kJ/g}$

