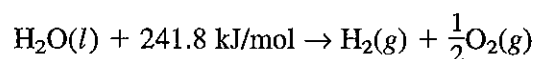
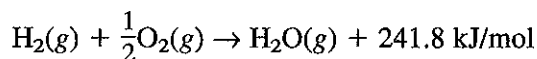


CHAPTER 17 REVIEW*Reaction Energy and Reaction Kinetics***SECTION 17-1****SHORT ANSWER** Answer the following questions in the space provided.

- _____ For elements in their standard state, the value of ΔH_f° is _____.
- The formation and decomposition of water can be represented by the following thermochemical equations:



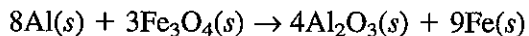
- _____ a. Is heat being taken in or released as liquid H_2O decomposes?
- _____ b. What is the appropriate sign for the enthalpy change in this decomposition reaction?

PROBLEMS Write the answer on the line to the left. Show all your work in the space provided.

- _____ If 200. g of water at 20°C absorbs 41 840 J of heat, what will its final temperature be?
- _____ Aluminum has a specific heat of $0.900 \text{ J}/(\text{g}\cdot^\circ\text{C})$. How much energy in kJ is needed to raise the temperature of a 625 g block of aluminum from 30.7°C to 82.1°C ?
- The products in a reaction have a total heat content of 458 kJ/mol and the reactants have a total heat content of 658 kJ/mol.
 - _____ a. What is the value of ΔH for this reaction?

SECTION 17-1 continued

- _____ b. Which is the more stable part of this system, the reactants or the products?
6. The heat of combustion of acetylene gas is -1301.1 kJ/mol of C_2H_2 .
- a. Write the balanced thermochemical equation for the complete combustion of C_2H_2 .
- _____ b. If 0.25 mol of C_2H_2 react according to the equation in part a, how much heat is released?
- _____ c. How many grams of C_2H_2 are needed to react according to the equation in part a to release 3900 kJ of heat?
7. _____ When 1 mol of Al_2O_3 is formed according to the equation below, 1169.8 kJ of heat are liberated. Determine the ΔH for the reaction between Al and Fe_3O_4 if the heat of formation for Fe_3O_4 is -1120.9 kJ/mol.



8. _____ Use the data in Appendix Table A-14 of the text to determine the ΔH of the following reaction.

