

12-3 Review and Reinforcement

Hess's Law

Answer each of the following questions in the space provided.

1. What does Hess's law say about the enthalpy change for a net reaction?

2. Explain why Hess's law is useful in the chemistry laboratory.

3. How can ΔH be calculated for an equation in which the coefficients have been multiplied by a factor of two?

4. What happens to the sign of ΔH if a reaction is run in the reverse direction from the way it is written?

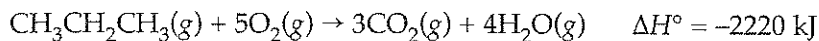
5. Can a reaction proceed in more than one direction? Explain your answer.

6. What is meant by the terms heat of fusion and heat of vaporization?

12-3 Review and Reinforcement (continued)

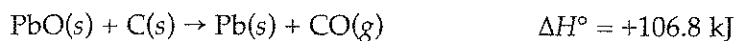
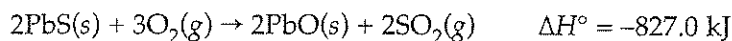
Solve the following problems in the space provided. Show all your work.

7. The combustion of propene proceeds in two steps:



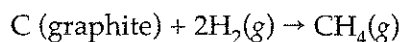
Calculate the value of ΔH° for the combustion of 2.70 mol of propene into carbon dioxide and water.

8. From the following enthalpy changes,



calculate the value of ΔH° when 1.55 mol of PbS reacts to form lead in the following reaction:
 $2\text{PbS}(s) + 3\text{O}_2(g) + 2\text{C}(s) \rightarrow 2\text{Pb}(s) + 2\text{CO}(g) + 2\text{SO}_2(g)$. Is the reaction endothermic or exothermic?

9. Determine the change in enthalpy for the following reaction:



Use these reaction equations:

