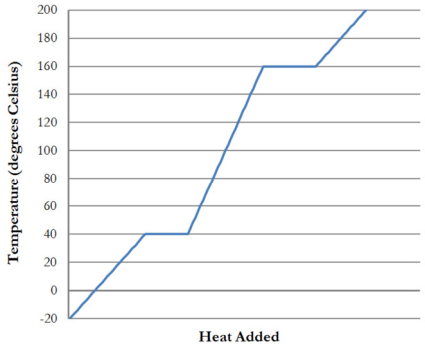
Extra Problems for Chapter 6

1. Convert a temperature of 75.0 ºF into ºC.

2. What is a temperature of 1,420 ºC in ºF?

3. The temperature of a gas is 1,115 ºF, and the temperature of another sample of the same gas is 700.0 ºC. Which gas's molecules are moving more slowly?

4. The graph on the right depicts the heating curve of a newly-discovered substance.



   a. At what temperature does this substance melt?
   b. At what temperature does this substance boil?
   c. What is the phase of this substance at 20 ºC?

5. Balance the following chemical equations:

   a. Solid aluminum reacts with liquid hydrogen monobromide to make aqueous aluminum bromide and gaseous hydrogen. (The symbol for bromine is "Br.")
   b. $KOH + H_3PO_4 \rightarrow H_2O + K_3PO_4$
   c. $SeCl_6 + O_2 \rightarrow SeO_2 + Cl_2$
   d. $C_9H_{20} + O_2 \rightarrow CO_2 + H_2O$
   e. Solid iron (III) oxide reacts with carbon monoxide gas to make solid iron and carbon dioxide gas. (Iron's symbol is "Fe.")

6. Give balanced chemical equations for the following:

   a. The formation of $NaNO_3$.
   b. The decomposition of C_3H_8O.
   c. The complete combustion of gaseous C_3H_8O.

7. Identify the following chemical reactions as formation, decomposition, single displacement, double displacement, complete combustion, or incomplete combustion.

   a. $Mg\ (s) + CuCl_2\ (aq) \rightarrow MgCl_2\ (aq) + Cu\ (s)$
   b. $6C + 6H_2 + O_2 \rightarrow C_6H_{12}O_2$
   c. $AgNO_3\ (aq) + NaOH\ (aq) \rightarrow AgOH(s) + NaNO_3\ (aq)$
   d. $C_6H_{12}O_2\ (l) + 5O_2\ (g) \rightarrow 6CO\ (g) + 6H_2O\ (g)$
   e. $2AgOH\ (s) \rightarrow 2Ag\ (s) + O_2\ (g) + H_2\ (g)$