Worksheet: Energy

1. In the reaction of one mole of carbon with oxygen gas, the energy of the carbon dioxide product is 393 kJ lower than the energy of the reactants.

a. Is the reaction exothermic or endothermic?

b. Write the equation for the reaction, including the heat of the reaction.

c. What is the value, in kilojoules, of the ΔH for this reaction?

2. In the formation of two moles of ammonia, NH_3, from hydrogen and nitrogen, 92.2 kJ of heat is released.

$N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$

How much heat, in kilojoules, is released when 50.0g of ammonia is produced?

3. Mercury (II) oxide decomposes to mercury and oxygen.

$2HgO(s) \rightarrow 2Hg(l) + O2(g) \quad \Delta H = +182kJ$

a. Is the reaction endothermic or exothermic?

b. How many kilojoules are needed to react 25.0g of mercury (II) oxide?