Enthalpy

$$q_p = \Delta H = \Delta E + P\Delta V$$
$$\Delta H = H_{final} - H_{initial} = H_{products} - H_{reactants}$$
$$w = -P\Delta V$$

1. What conditions will the enthalpy change of a process or reaction be equal to the heat that is transferred into or out of the system?

2. If a process is run under constant pressure and heat is released from the system, will the enthalpy of the system increase or decrease?

3. Consider the following balanced equation:

$$2\ NO\ (g) + O_2\ (g) \rightarrow 2\ NO_2\ (g)$$

If the reaction were carried out in a constant volume container at constant temperature, would the amount of heat (absorbed or released) correspond to ΔH or ΔE? Which quantity would be larger for this reaction?

4. A gas is confined to a vessel under a constant pressure. The gas undergoes a chemical reaction and absorbs 785 J of heat from the surroundings. There are 625 J of work done on the gas from the surroundings. Calculate both ΔH and ΔE for this reaction.