Chem II – Enthalpy Change Handout Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Show all of your work for a chance at partial credit.

1. Calculate the enthalpy change for the melting of a 30 g ice cube.
2. A reference gives a value of +39.23 kJ/mol for the molar enthalpy of vaporization for methanol. What enthalpy change occurs in the evaporation of 10.0 g of methanol?
3. An experiment produces evidence that the evaporation of 4.00 g of liquid butane, C4H10(l), requires a gain in enthalpy of 1.67 kJ. Find the molar enthalpy of vaporization for butane from this evidence.
4. A calorimeter has a heat capacity of 40.00 kJ/°C. Complete combustion of 1.00 g of hydrogen in this calorimeter causes a temperature increase of 3.54°C. Calculate the molar enthalpy of combustion for hydrogen from this evidence.
5. Combustion of 3.50 g of ethanol, C2H5OH(l), in a calorimeter with a heat capacity of 15.2 kJ/°C causes a temperature increase from 19.88°C to 26.18°C. Find the molar enthalpy of combustion for ethanol from this evidence.