Chemistry - Thermo HW4 - Thermo Calculations

Name: _____ **Date:** _____ **Per:** _____

Please show all needed work.   Write answers on the line or the space provided.

1. The amount of heat energy released or absorbed in a process is known as the
    _____.

2. When 1 mole of methane, CH_4, is burned, 890 kJ of energy is released. Calculate the ΔH when
    48 grams of CH_4 is burned. (Hint: determine if the reaction is endothermic or exothermic)
    Answer: _____

3. The molar heat of fusion of water is about 6 kJ/mol. How much energy is needed to convert 72
    grams of ice at $0\,°C$ to water at $0\,°C$?
    Answer: _____

4. The amount of energy needed to heat 2 g of metal from 10^oC to 60^oC is 700 J. The specific heat
    capacity of this sample of metal is _____.

5. A sample of metal has a specific heat of $0.2\ J/g\,°C$.   If 800 J of energy is added to and it results
    in a temperature change of $20°C$, determine the mass of the metal.
    Answer: _____

6. A 10 gram sample of metal with a specific heat of $0.50\ J/g\,°C$ is heated with 115 J of energy.
    How many degrees C does the temperature change?
    Answer: _____

7. You have a piece of iron metal and you added energy to it by heating it.   You wait until the metal reaches a stable temperature and then transfer it to a known volume of water.   The known volume of water is at a temperature lower than that of the metal.   Describe what will happen to the temperature of both the water and the metal.   Also, describe how you would determine how much energy you added to the metal.

Bank: 200, 24, enthalpy, 23, 7, -2670