Calorimetry Worksheet

*Please calculate all the answers for energy in **calories and Joules**.*

1) How much energy was required to take 25g of water that was originally at 20^0 C to 57^0 C? (Remember the Specific Heat of water is 1 cal/g ^{0} C)

2) How much energy is required to take 159g of Water from 20^0 C to 100^0 C?

3) When a 25.7 g sample of NaI dissolves in 80.0 g of water in a calorimeter, the temperature rises from 20.5 C to 24.4 C. Calculate the change in heat for the process.   NaI(s)→Na(aq) + I(aq)   (Don't freak out, this is the same as the previous problem it just sounds more complex. You have all of the parts you need just plug them in to your formula q=mCΔT)

4) When a 16.9 g sample of NaOH dissolves in 70.0 g of water in a calorimeter, the temperature rises from 22.4 C to 86.6 C. Calculate the change in heat for the process.   NaOH(s)---Na(aq) + OH(aq)

5) What is the specific heat of aluminum if the temperature of a 28.4 g sample of aluminum is increased by 8.1 C when 207 J of heat is added. (Use the same formula, you are just solving for a different variable)

6) How much energy will it require if 35 grams of Aluminum are cooled from 95 °C to 25 °C? The Heat Capacity of Aluminum is .89J/g K.

7) If I burn 0.315 moles of hexane (C_6H_{14}) in a bomb calorimeter containing 5.65 liters of water, what's the molar heat of combustion of hexane is the water temperature rises 55.4^0 C? The heat capacity of water is 4.184 J/g^{0}C.

8) If I burn 22.0 grams of propane (C_3H_8) in a bomb calorimeter containing 3.25 liters of water, what's the molar heat of combustion of propane if the water temperature rises 29.5^0 C?