	Problem solved	
1.	Calculate the enthalpy change of the reaction, ΔH_r^o , $C_2H_4(g) + H_2(g) \rightarrow C_2H_6(g)$ Given data are as follows $C_2H_4(g) + 3O_2(g) \rightarrow 2CO_2(g) + 2H_2O(l)$ $\Delta H_r^o = -1401$ kJ $C_2H_6(g) + 3½O_2(g) \rightarrow 2CO_2(g) + 3H_2O(l)$ $\Delta H_r^o = -1550$ kJ $H_2(g) + ½O_2(g) \rightarrow H_2O(l)$ $\Delta H_r^o = -286$ kJ	
2.	Illustrate the Hess's cycle for the reaction, $2NaHCO_3(s) \rightarrow Na_2CO_3(s) + CO_2(g) + H_2O(l)$. Calculate the enthalpy change of this reaction from the following data: $\Delta H^o_{f(NaHCO_3)}$ = -840.9 kJmol^{-1}, $\Delta H^o_{f(Na_2CO_3)}$= - 1130.7 kJmol^{-1}, $\Delta H^o_{f(CO_2)}$ = -393.5 kJmol^{-1}, $\Delta H^o_{f(H_2O)}$ = -286 kJmol^{-1}.	
3.	0.53 g of $C_4H_4S(l)$ is burnt to raise the temperature of a copper made beaker containing 200 g water. The temperature rises from 18.5 to 35.5 ^oC. Mass of the beaker is 100 g and specific heat for copper and water are 0.385 and 4.18 Jg^{-1o}C^{-1}, respectively. Calculate enthalpy change of combustion.	
4.	A quantity of 200 mL 1.2 molL^{-1} HCl is mixed with 200 mL 0.50 molL^{-1} $Ba(OH)_2$ in a calorimeter that has a heat capacity of 453 JK^{-1}. The initial temperature of both the solutions before mixing was 20 ^oC. Calculate the final temperature of the mixed solution. Given that ΔH_n= -56.2 kJmol^{-1} and specific heat for aqueous solution is 4.18 JK^{-1}g^{-1}.	