Thermodynamic Equations, Thermochemical Equations and Exo and Endo.

Nov. 20

exothermic - heat produced.

Thermodynamic

$$C(s) + O_2(g) \rightarrow CO_2(g) \quad \Delta H = -393.5 \text{ kJ}.$$

- written with the energy expressed as a change in potential

Thermochemical

$$C(s) + O_2(g) \rightarrow CO_2(g) + 393.5 \text{ kJ}.$$

- energy is expressed as a reactant or product in kinetic form.

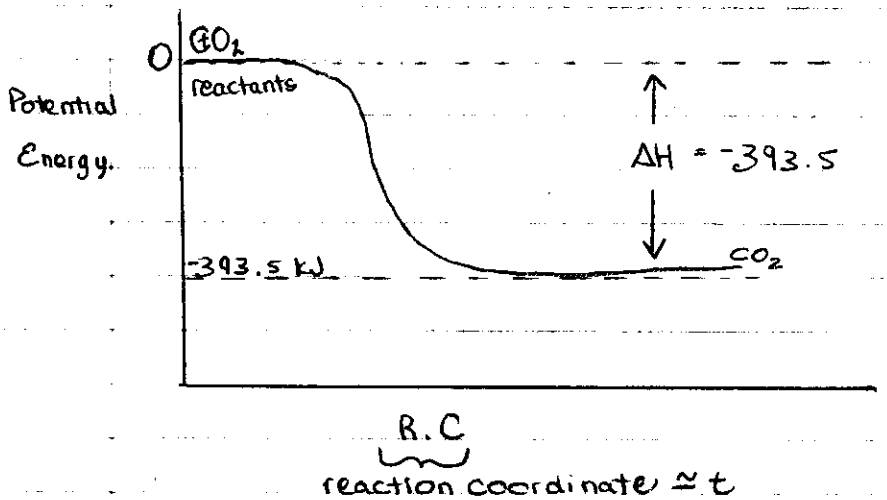
endothermic - heat absorbed

Thermodynamic

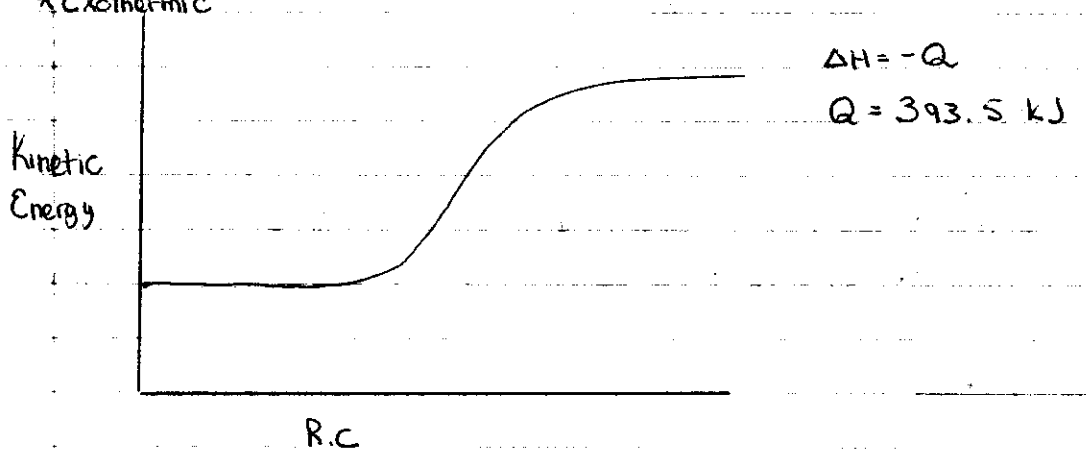
$$H_2O(l) \rightleftharpoons H_2(g) + \tfrac{1}{2}O_2(g) \quad \Delta H = 285.5 \text{ kJ}.$$

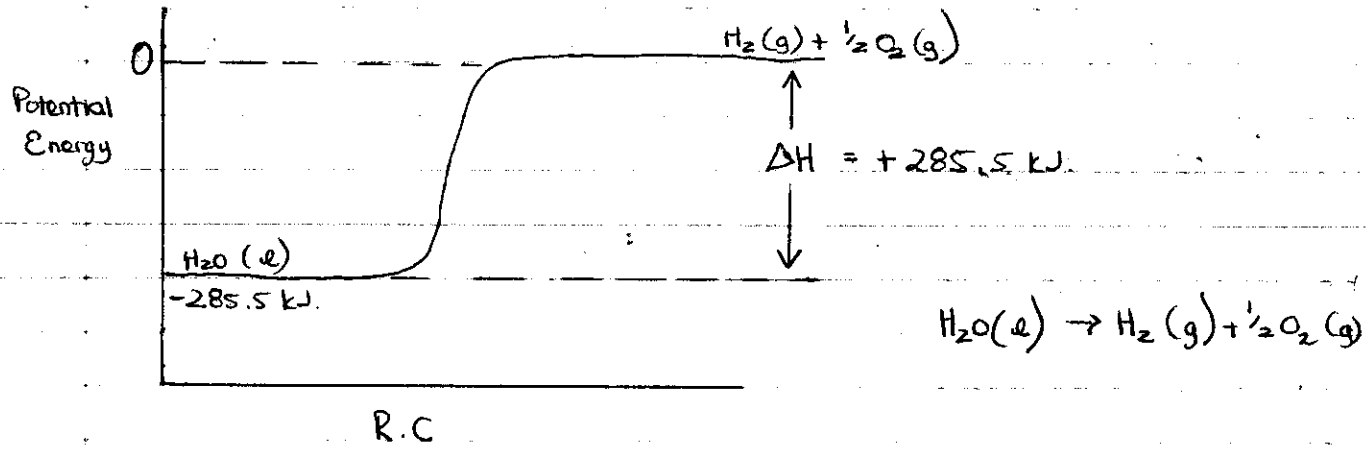
Thermochemical

$$H_2O(l) + 285.5 \text{ kJ} \rightarrow H_2(g) + \tfrac{1}{2}O_2(g).$$



*Exothermic





$H_2O(\ell) \rightarrow H_2(g) + \frac{1}{2}O_2(g)$

Exothermic	Endothermic
• heat given off (gets hot)	• heat absorbed (gets cool)
• Q = +	• Q = −
• ΔH = −	• ΔH = +
• temperature goes up	• temperature goes down
• beware the states.	• " "
• particles get closer together	• particles get further apart
• decrease in pot. energy	• increase in pot. energy
• Stronger attractive forces	• weaker attractive forces