Calculate the energy released when 135g of aluminum are reacted in the below equation.

$2Al + Fe_2O_3 \rightarrow 2Fe + Al_2O_3 \quad \Delta H_{rxn} = -851.5kJ$

Calculate ΔH for combustion of methane, CH_4

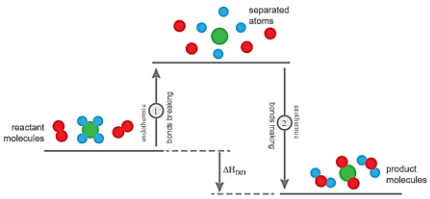
$CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(l)$

Substance	ΔH_f (kJ)
CH_4	-74.80
O_2	0
CO_2	-393.50
H_2O	-285.83

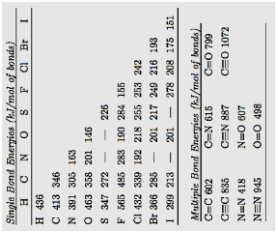
What is ΔH^o_{rxn} (kJ) for combustion of ethanol?

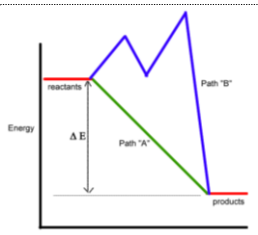
$2\ C_2H_5OH\ (l) + 6\ O_2\ (g) \rightarrow 4\ CO_2\ (g) + 6\ H_2O\ (l)$

Formula	ΔH^o_f
C_2H_5OH (*l*)	–277.6
CO_2 (*g*)	–393.5
H_2O (*g*)	–241.8
H_2O (*l*)	–285.8



Action	Algebraic Sign	How to Remember
Break a Bond	+	Takes to Break
Form a Bond	-	Free to Form





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Rxn #1) **$½\ N_2(g) + ½\ O_2\ (g) \rightarrow NO\ (g)$**
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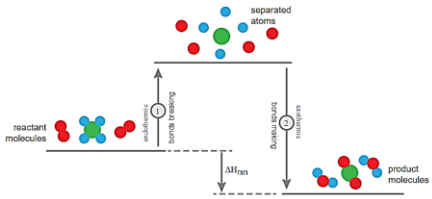

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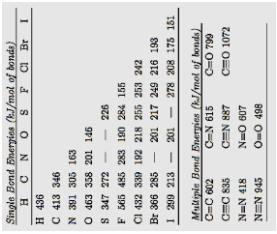

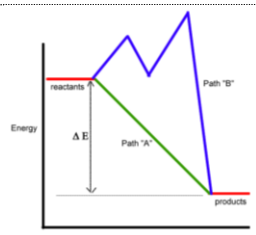

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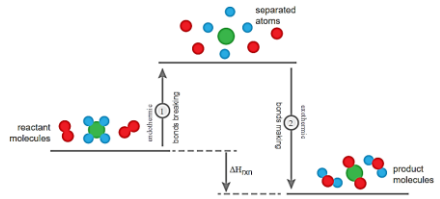

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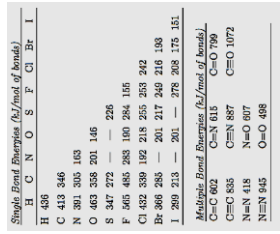

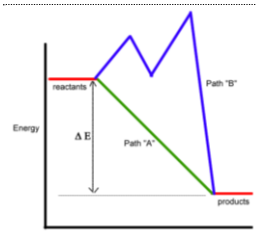

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