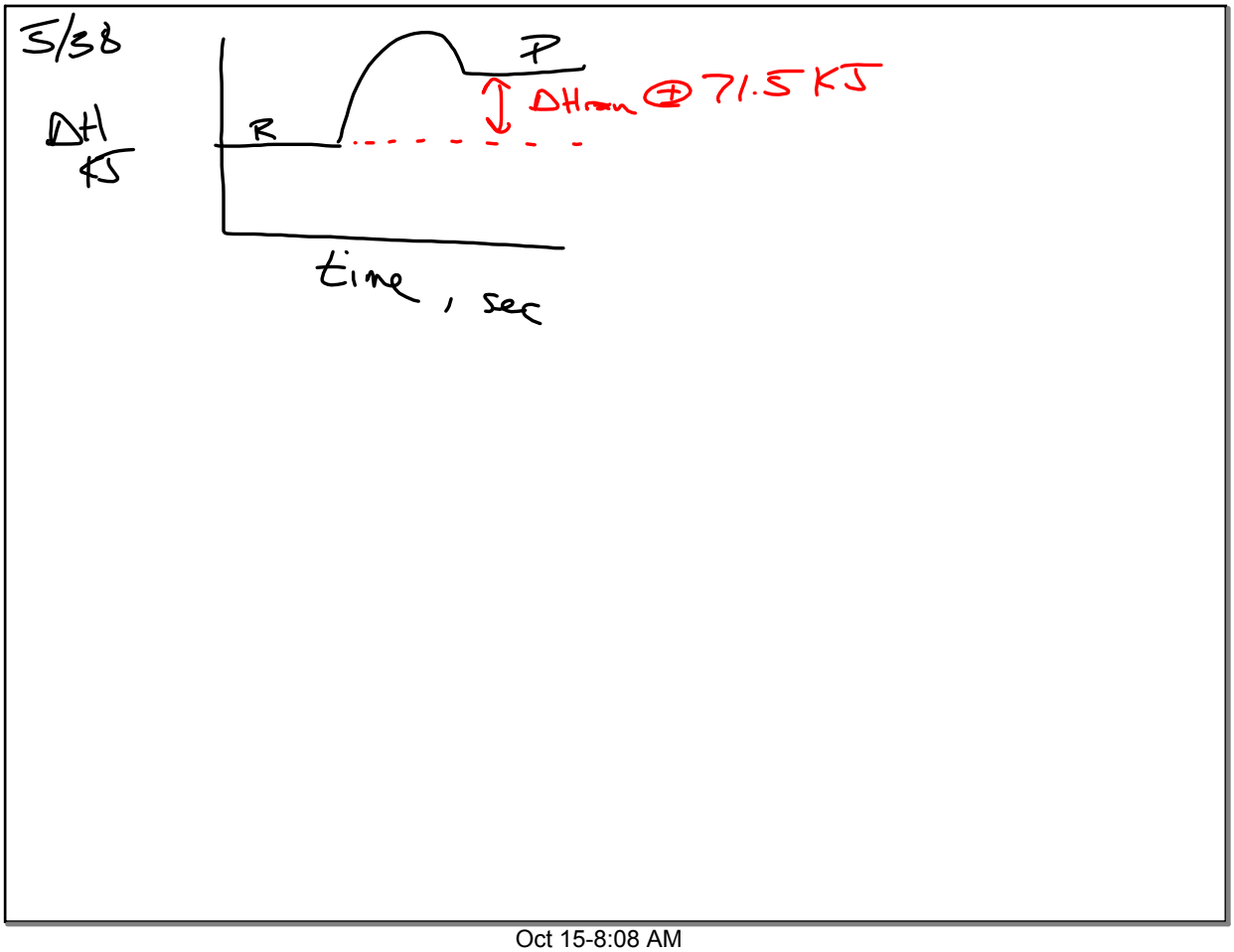
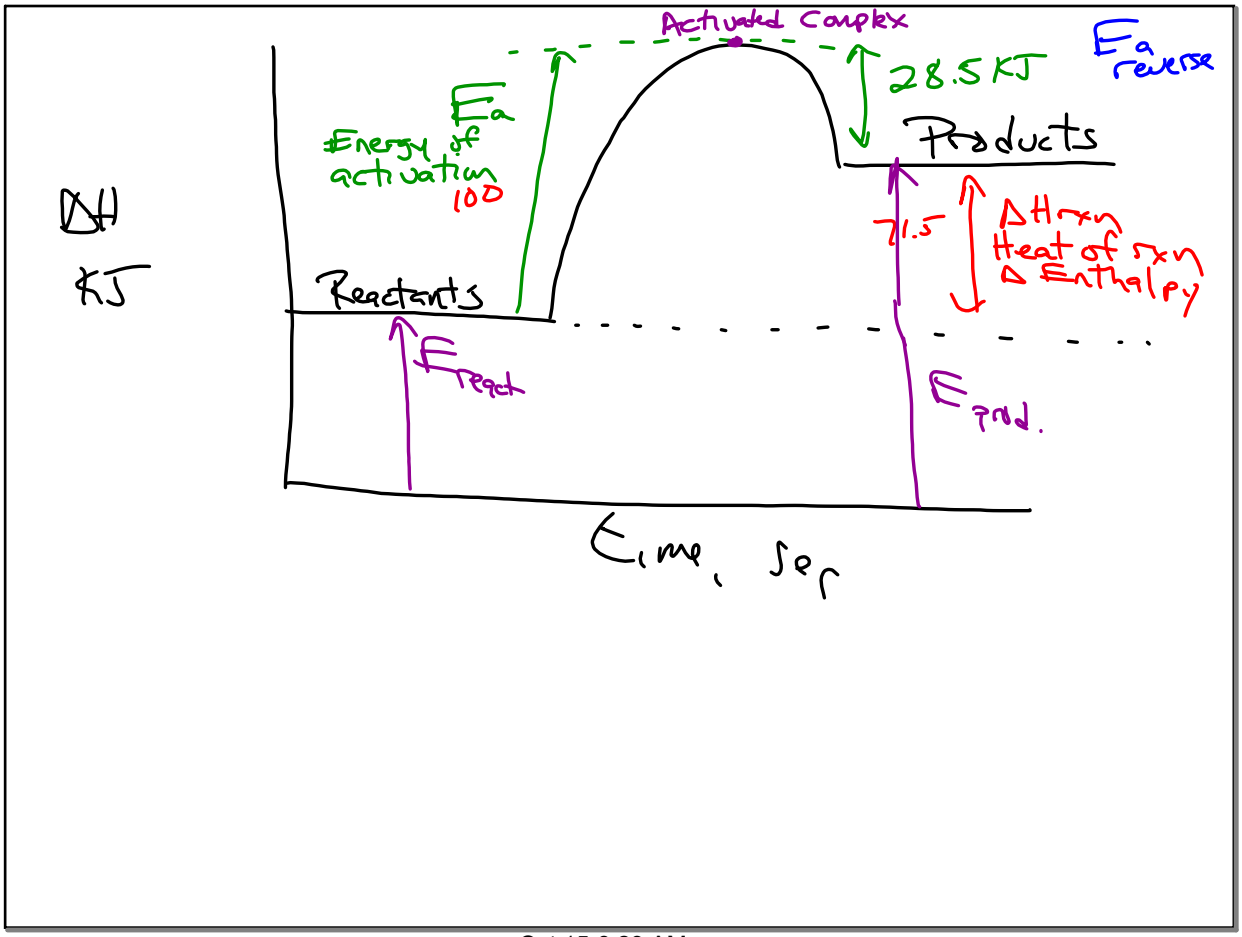


Oct 15-8:08 AM



Oct 15-8:23 AM

Enthalpy ΔH° KJ
$\ominus \Delta H$ Spont EXO

Free energy

Entropy ΔS° J
$\oplus \Delta S$ Spont.

P 1112-1114

disorder messier

Gibbs Free Energy ΔG° KJ

$\Delta G = \Delta H - T\Delta S$ (K)

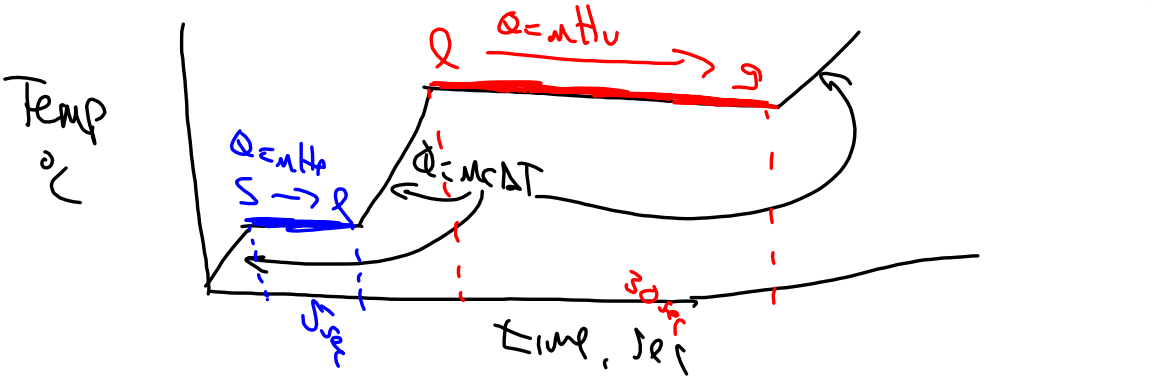
KJ for all

Oct 15-8:39 AM

Heat Calculations (J ↔ g) (KJ ↔ Kg)

$Q = mc\Delta T$ KE, $Q = mH_f$, $Q = mH_v$

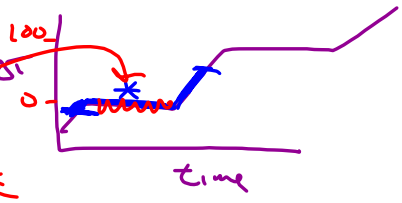
$c = \frac{Q}{m\Delta T} = \frac{J}{g\,^\circ C}$ or $\frac{J}{g\,K}$ or $\frac{KJ}{Kg\,^\circ C}$



Oct 15-8:58 AM

H_2O $-5^\circ C$ to $45^\circ C$, $10g\ H_2O$

$= \_\_\_ J$



$Q = MC\Delta T$ (-5 to $45^\circ C$)

$= (10)(4.18)(50)$

$= 2090\ J$

$Q = MH_f$ (melt at $0^\circ C$)

$= (10)(334)$

$= 3340\ J$

$5430\ J$

Oct 15-9:11 AM

Hess's Law

React $\longrightarrow$ ~~B~~ $\quad \Delta H_1 =$

~~B~~ $\longrightarrow$ ~~C~~ $\quad \Delta H_2 =$

~~C~~ $\longrightarrow$ Product $\quad \Delta H_3 =$

$R \rightarrow P \quad \Delta H_{rxn} = \Delta H_1 + \Delta H_2 + \Delta H_3$

Oct 15-9:15 AM

$C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)}$ $\Delta H = -393.5\ KJ$

$CO_{(g)} + \frac{1}{2}O_{2(g)} \rightarrow CO_{2(g)}$ $\Delta H = -283.0\ KJ$

Find ΔH for $C_{(s)} + \frac{1}{2}O_{2(g)} \rightarrow CO_{(g)}$ $\Delta H = ?$

$C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)}$ $\Delta H = -393.5\ KJ$

$CO_{2(g)} \rightarrow CO_{(g)} + \frac{1}{2}O_{2(g)}$ $\Delta H = +283.0\ KJ$

$C_{(s)} + \frac{1}{2}O_2 \rightarrow CO_{(g)}$ $\Delta H = -110.5\ KJ$

Oct 15-9:20 AM

$C_2H_2 + \frac{5}{2}O_2 \rightarrow 2CO_2 + H_2O$ -1299.6

$C + O_2 \rightarrow CO_2$ $-393.5\ KJ$

$H_2 + \frac{1}{2}O_2 \rightarrow H_2O$ -285.8

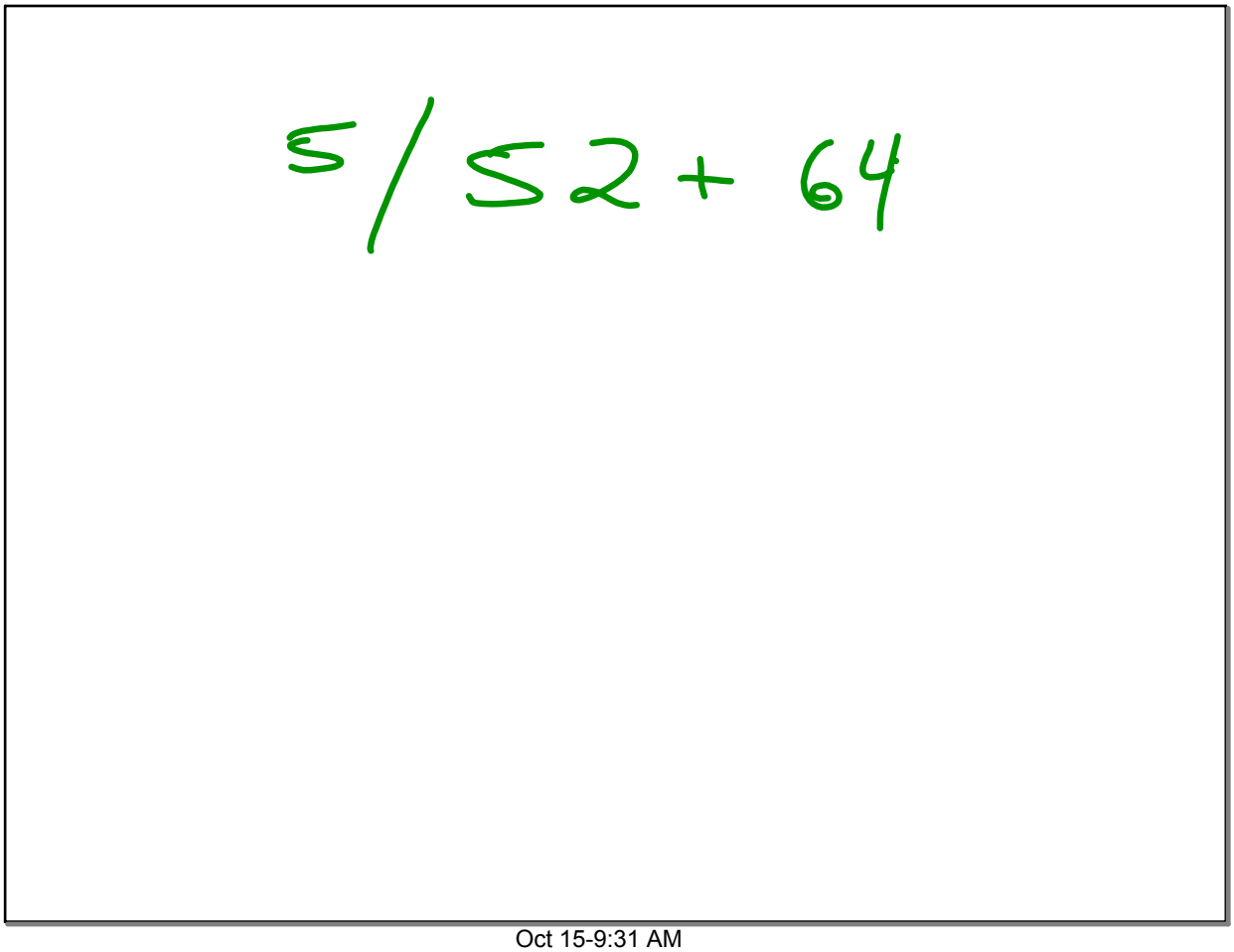
$2C + H_2 \rightarrow C_2H_2$

$2C + 2O_2 \rightarrow 2CO_2$ $2(-393.5\ KJ)$

$H_2 + \frac{1}{2}O_2 \rightarrow H_2O$ -285.8

$2CO_2 + H_2O \rightarrow C_2H_2 + \frac{5}{2}O_2$ $+1299.6$

Oct 15-9:26 AM



Oct 15-9:31 AM