

Enthalpy of formation
to make stuff

P112
 App. C

ΔH
energy

elemental form $\Delta H_f = 0$

ΔH_f° ← *std conditions
1 atm
298K*

$$\Delta H_{rxn} = n \sum \Delta H_{prod} - n \sum \Delta H_{reactants}$$

#mole,

Oct 18-8:05 AM

$A + 2B \rightarrow 3C$

ΔG
 ΔS

ΔH_{rxn}

$$= \left[3 (\Delta H_f C) \right] - \left[\Delta H_f(A) + 2 (\Delta H_f B) \right]$$

$n \sum Prod$ $- n \sum React$

⊖ exo

⊕ endo

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$\Delta G =$ Gibbs Free energy

$$\Delta G = \Delta H - T\Delta S$$

ΔH ΔS T ΔS

KJ/mole KJ/mole MUST Given in J/mole

Must change to KJ/mole

$\ominus \Delta H$ spont.
 $\oplus \Delta S$ spont.

SPONT

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

$$= \ominus - (\oplus * \oplus)$$

$$= \ominus - \oplus$$

$$= \ominus + \ominus$$

$$\Delta G = \ominus$$

Spont.

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$$C_2H_5OH(l) + 3O_2(g) \rightarrow 2CO_2(g) + 3H_2O(l)$$

$$\Delta H_{rxn} = [2(\Delta H(CO_2(g)) + 3\Delta H(H_2O(l)))] - [\Delta H(C_2H_5OH) + 3(\Delta H(O_2(g)))]$$

$$= [2(-393.5) + 3(-285.83)] - [-277.7 + 3(0)]$$

$$\Delta H_{rxn} = -1366.79 \text{ kJ}$$

Oct 18-8:35 AM

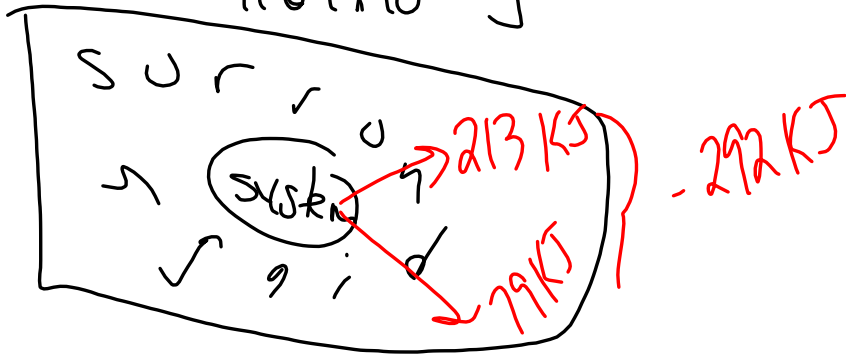
PS 5-1 5

$$\textcircled{1} KE = \frac{1}{2} m v^2$$

$$= \frac{1}{2} (9.11 \times 10^{-31} \text{ kg}) (6 \times 10^6)^2$$

$$= 1.64 \times 10^{-17} \text{ J}$$

②



Oct 18-8:42 AM

S.1 # 23, 29, 30

S.2 # 23 + 25

Oct 18-8:47 AM