E1

(10) $\ln A_t = -kt + \ln A_0$ } 60.9% decompose, $t = ?$

$\ln 0.391 = -2.44t + \ln 1$

(12) 1°, $t_{1/2} = 19$ min

1 → 0.5 (19) → 0.250 (19) → 0.125 (time?)

$\ln A_t = -kt + \ln A_0$

$\ln 0.125 = -0.0365t + \ln 1$

$t = 56.97$

$\frac{t_{1/2}}{1} = \frac{0.693}{k}$

$k = \frac{0.693}{19}$ ← $t_{1/2}$

$k = 0.0365$

Mar 19-8:10 AM

(11)

	I_2	+ Br_2	⇒ $2IBr$
I	0.5	0.5	~~0~~
Δ	−0.42	−0.42	+0.84
E	0.08	0.08	0.84

$$K = \frac{[IBr]^2}{[I_2][Br_2]} = \frac{(0.84)^2}{(0.08)(0.08)} =$$

Mar 19-8:19 AM

(20) $PCl_5 \rightarrow PCl_3 + Cl_2$ $K = 0.0211$

	PCl_5	PCl_3	Cl_2
I	1	0	0
Δ	$-x$	$+x$	$+x$
E	$1-x$	x	x

$$K = \frac{(PCl_3)(Cl_2)}{(PCl_5)} = \frac{0.0211}{1} = \frac{x^2}{1-x}$$

$$x^2 + 0.0211x - 0.0211 = 0$$

$$x = 0.135$$

Mar 19-8:23 AM

(22) $$K_c = \frac{(NH_3)^2}{(N_2)(H_2)^3} = \frac{(0.0027)^2}{(0.402)(0.1207)^3} = 0.103$$

$\Delta n = 2 - 4 = -2$

$$K_P = K_c(RT)^{\Delta n}$$

$$= 0.103\left[(0.0826)(745)\right]^{-2} = 2.76 \times 10^{-5}$$

Mar 19-8:26 AM

Chap 19 - Thermodynamics

heat. work

1st law - Heat is work and work is heat.

2nd law - Heat flows from Hot → cold.

3rd law - elemental state. $\Delta H = 0$

True crystal → "No Motion" $\Delta S = 0$

Movement

Mar 19-8:34 AM

ΔH = Enthalpy (KJ)

Change in energy

ΔS = Entropy (J)

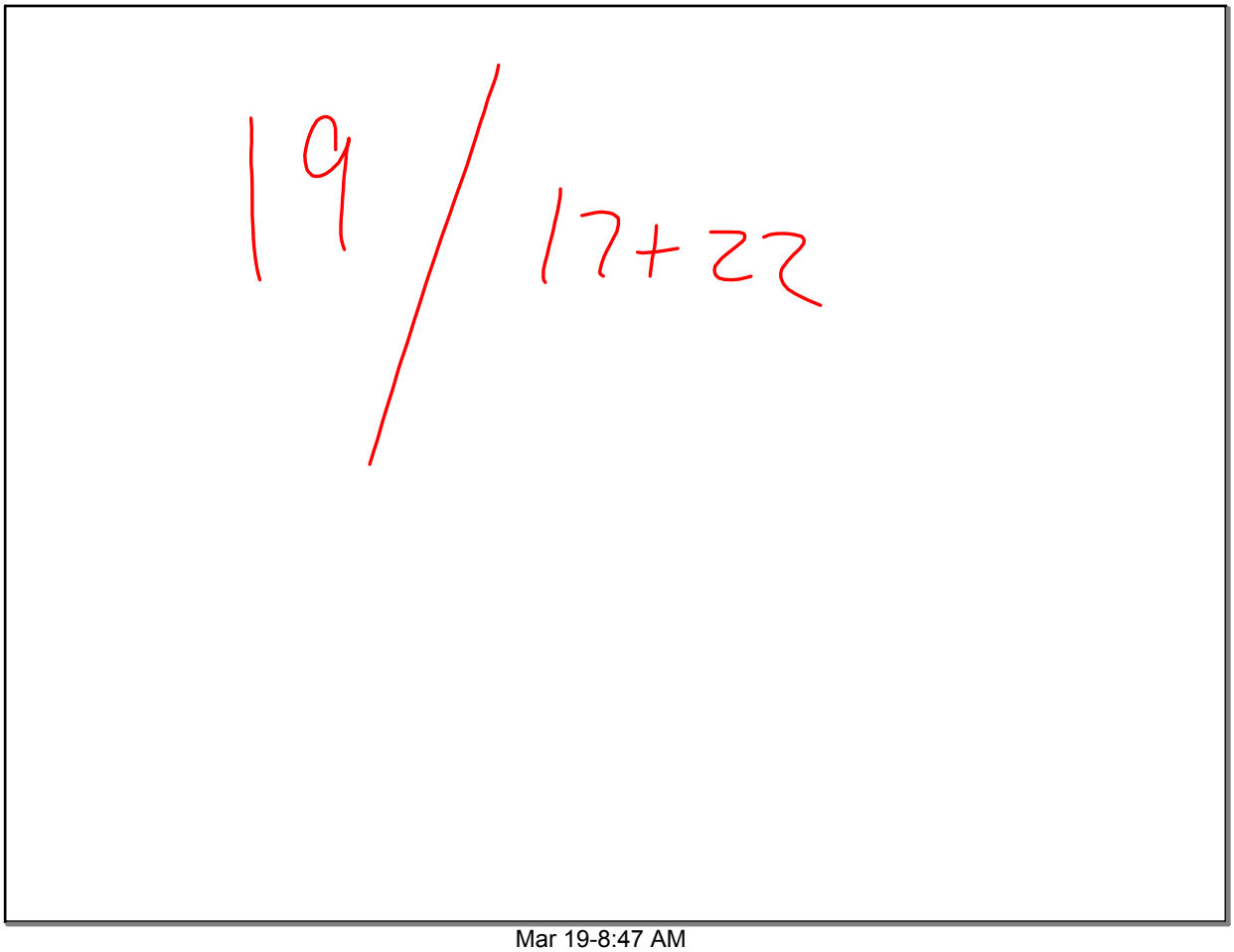
↳ Degree of Disorder ⇒ Randomness

ΔG = Gibbs free energy (KJ)

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

KJ KJ. 1 KELVIN! J → KJ

Mar 19-8:38 AM



Mar 19-8:47 AM