

205 (27)  $E = E^\circ - \frac{RT}{nF} \ln Q$   $\rightarrow \frac{[P]^{coeff}}{[R]^{coeff}}$   
 No (S) or (l)

AT EQ  $E^\circ = \frac{RT}{nF} \ln K$

$2H^+ + \underline{Sn(s)} \rightarrow Sn^{2+} + H_2(g)$

$Q = \frac{[Sn^{2+}][H_2]}{[H^+]^2}$

May 5-7:39 AM

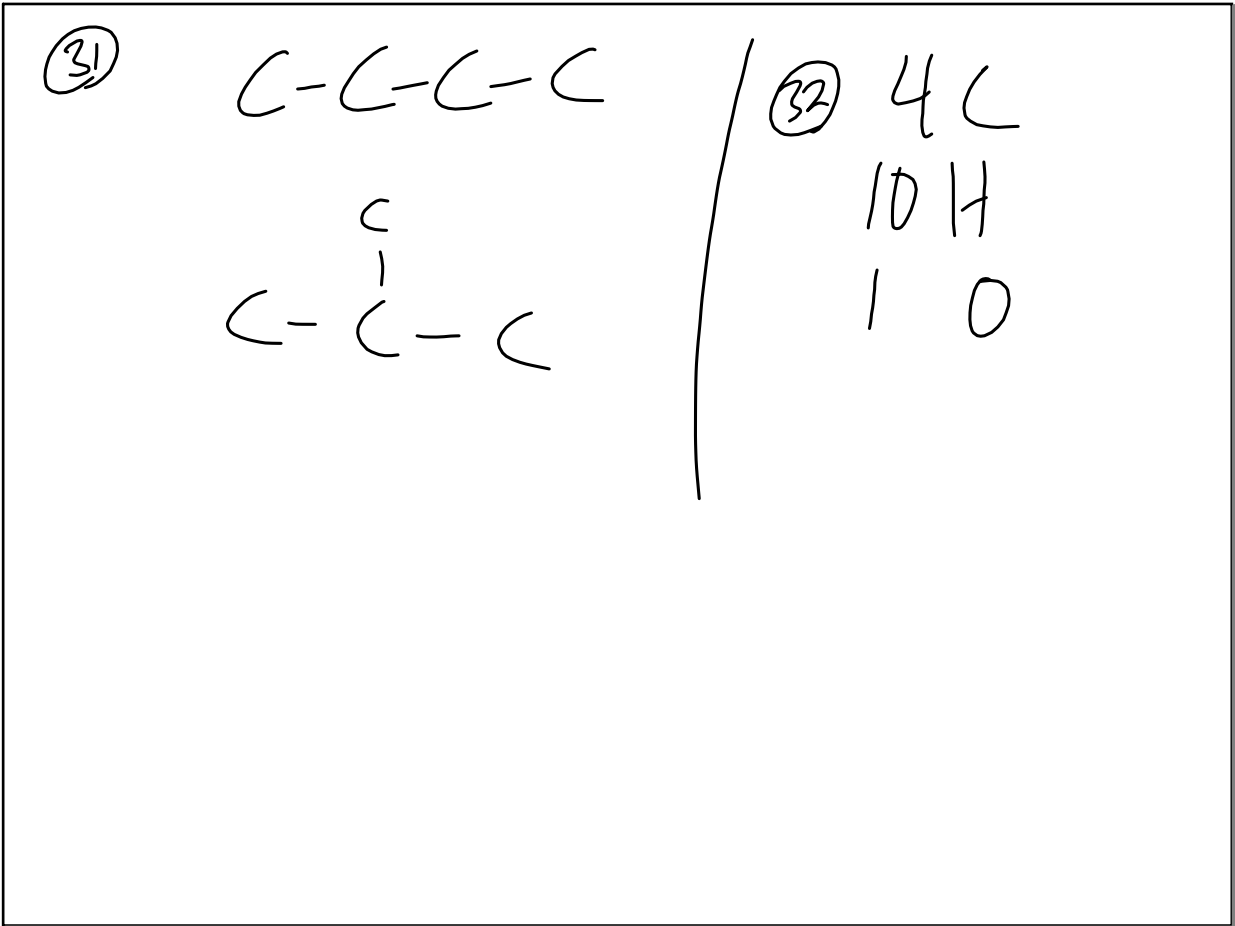
(29)  ${}^{60}_{28}Ni$   
 $\swarrow$   
 $28P$   $32n$

$28p = 28(1.00728)$   
 $32n = 32(1.00867)$   
 $60.48128 \text{ amu}$   
 (Actual)  $- 59.9308 \text{ amu}$   
 $\Delta m = 0.55048 \text{ amu}$

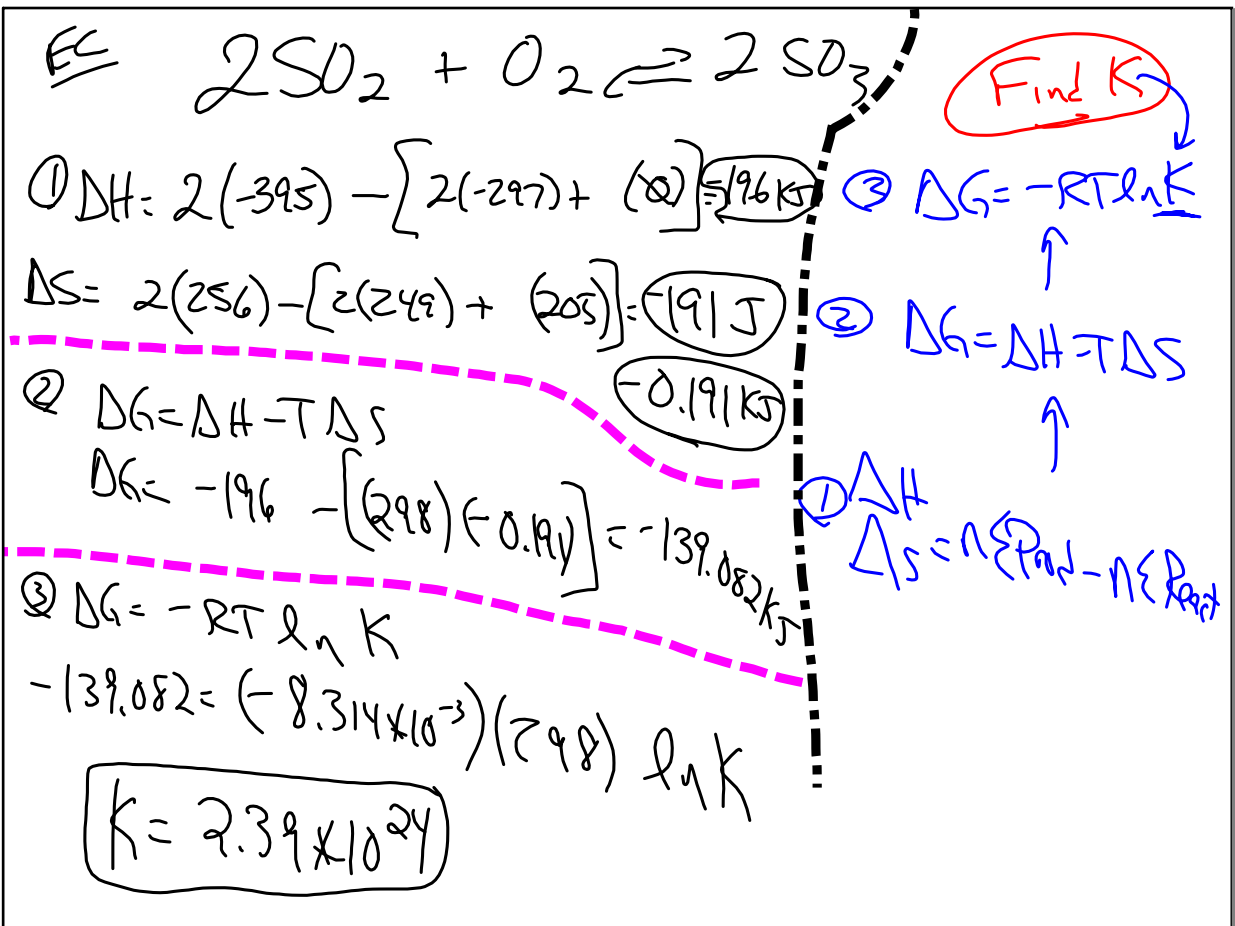
$E = mc^2$   
 $E = (9.17 \times 10^{-28})(3 \times 10^8)^2$   
 $8.26 \times 10^{-11} \text{ J/nucleon}$

$\frac{0.55048 \text{ amu}}{6 \times 10^{23} \text{ amu}} \times \frac{1 \text{ kg}}{1000 \text{ g}} = 9.17 \times 10^{-28} \text{ kg}$

May 5-8:03 AM



May 5-8:10 AM



May 5-8:15 AM

2017 Final

- ① Isomer
- ② ABS - Arrhenius, Bronsted-Lowry, Lewis
- ③ REDOX, FATRED CAT, An ox  
Balance Acid / Basic Salts.
- ④  $\Delta G = \Delta H - T\Delta S$ ,  $\frac{\Delta G}{\Delta S} = n \in \text{Prod} - n \in \text{React}$ ,  $\Delta G = -RT \ln K$   
 ~~$\Delta G = -RT \ln Q$~~
- ⑤  $\ln A_x = \ln k + \ln A_0$ ,  $\frac{1}{A_x} = \ln k + \frac{1}{A_0}$   $\rightarrow 0$   
 $t_{1/2} = \frac{0.693}{k}$ ,  $t_{1/2} = \frac{1}{(A_0)k}$

May 5-8:22 AM

- ⑥  $\ln \frac{k_1}{k_2} = \frac{E_a}{R} \left( \frac{1}{T_2} - \frac{1}{T_1} \right)$   
 $E = E^0 - \frac{RT}{nF} \ln Q$ ,  $E^0 = \frac{RT}{nF} \ln K$
- ⑦ Rate =  $k [\text{React}]^m$   $\leftarrow$  rxn order  
**TABLE!**
- ⑧ Rate disappear = Rate appear  $-\frac{1}{R} \frac{d[R]}{dt} = +\frac{1}{P} \frac{d[P]}{dt}$
- ⑨ up to + including slow step  $\Rightarrow$  RATE OF RXN

May 5-8:39 AM

⑩ RICE      WA + WB      SA + SB  
 $K_a$        $K_b$       NO RICE  
 $K_a * K_b = K_w$

⑪  $pH = pK_a + \log \frac{\text{base}}{\text{acid}}$       Buffer  
 WA + Salt of WA  
 common ion.

⑫ Nucleon Math eqn       $Q_{\text{shell}} \rightarrow$   
 $\rightarrow$  decay

May 5-8:42 AM

⑬  $K_{sp}$

⑭  $E^\circ_{\text{ox}}$  vs  $E^\circ_{\text{red}}$

⑮ Mass defect,  $E = mc^2$   
 $\uparrow$   
 $K_g$

May 5-8:45 AM

G1G1-1Procedure

- ① 10 drops G1
- ② Add 4 drops 6M HCl
- ③ Stir + Cent.
- ④ Add (max) 1-2 drops HCl
- ⑤ Decant liquid-
- ⑥ Wash ppt with 5d D<sub>H2O</sub> + discard (A)

Observation

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May 5-9:10 AM

G1-2 (Pb<sup>2+</sup>)

- ① 15d D<sub>H2O</sub>
- ② Heat in water bath.

May 5-9:16 AM