

(20)  ~~$E = E^{\circ} - \frac{RT}{nF} \ln Q$~~

$\text{Sn}^{+2} \rightarrow \text{Sn} \quad -0.14$   
 $\text{Ni} \rightarrow \text{Ni}^{+2} \quad +0.23$

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

$0.09 = \frac{(8.314)(298)}{2(96500)} \ln [\text{Ni}^{+2}]$

$\text{Sn}^{+2} + \text{Ni}^{\circ} \rightarrow \text{Ni}^{+2} + \text{Sn}^{\circ} \quad +0.09$

$K = \frac{[\text{Ni}^{+2}]}{[\text{Sn}^{+2}]} = \frac{[\text{Ni}^{+2}]}{1}$

Apr 4-7:38 AM

(22)  $\text{Co}_{(s)} + 2\text{H}^+ \rightleftharpoons \text{Co}^{+2} + \text{H}_{2(g)}$

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

$0.28 = \frac{(8.314)(298)}{2(96500)} \ln K$

$K = \frac{[\text{Co}^{+2}][\text{H}_2]}{[\text{H}^+]^2}$

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$N_i^0$  ,  $N_i^{504}$  , ~~5 gms~~ , 100g Ni , (time?)  
 ~~$\frac{1 \text{ mole Ni}}{2 \text{ mole}}$~~        ~~$\frac{5 \text{ cal}}{\text{sec}}$~~        ~~$\frac{96500 \text{ coul}}{1 \text{ mole}}$~~

|                  |                      |                      |                   |                    |
|------------------|----------------------|----------------------|-------------------|--------------------|
| (sec)            | <del>96500 cal</del> | <del>2 mole</del>    | <del>1 mole</del> | <del>100g Ni</del> |
| <del>5 cal</del> | <del>1 mole</del>    | <del>1 mole Ni</del> | <del>59g Ni</del> | =                  |

Apr 4-8:01 AM

$$2O_3 \rightarrow 3O_2$$

$$\Delta S = n \sum_{\text{prod}} - n \sum_{\text{react}}$$

$$= 3(O_2) - 2(O_3)$$

$$= 3(205) - 2(239)$$

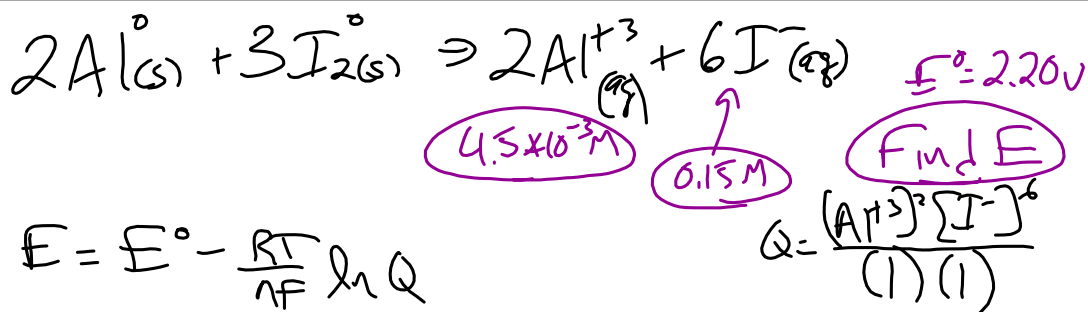
Apr 4-8:06 AM

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

Gibbs Free E

Spont  $\Delta G < 0$ ,  $\Delta E > 0 \rightarrow K > 1$

Apr 4-8:07 AM

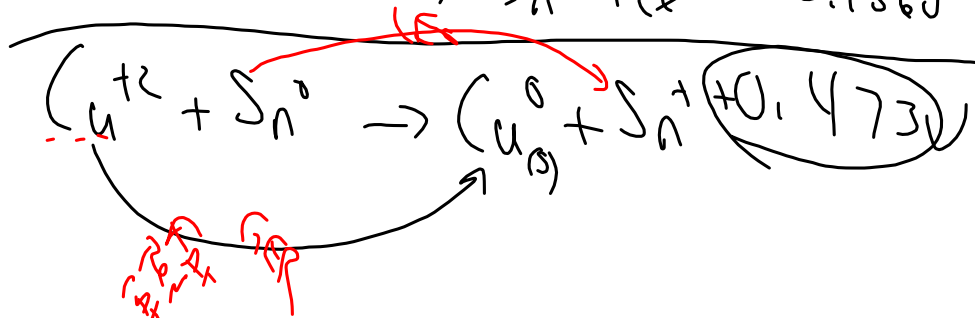
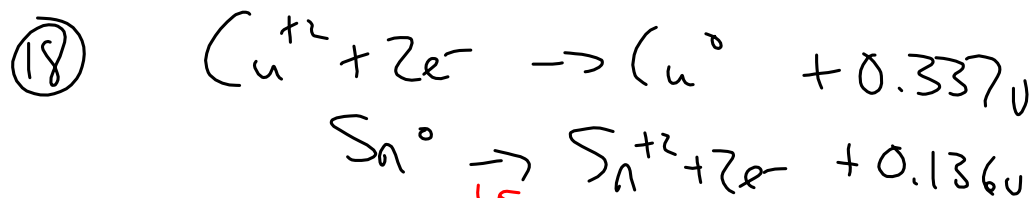
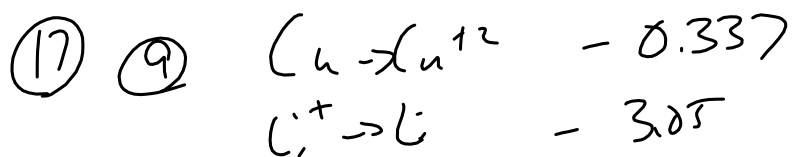


$$E = 2.20 - \frac{8314(298)}{6(96500)} \ln \left[ (4.5 \times 10^{-3})^2 (0.15)^6 \right]$$

$$= 2.20 - 0.095$$

$$= 2.295V$$

Apr 4-8:12 AM



Apr 4-8:19 AM



Apr 4-8:28 AM