20.34

$\overset{+2}{Pd}\overset{-1}{Cl_4}^{-2} + \overset{0}{Cd} \rightarrow \overset{0}{Pd} + 4\overset{-1}{Cl^-} + \overset{+2}{Cd^{+2}}$

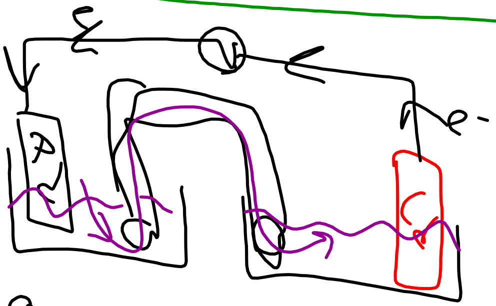
(12) −4 = −2

$2e^- + Pd^{+2} \rightarrow Pd^0$ $E^\circ_{red} = +0.627V$

$Cd^\circ \rightarrow Cd^{+2} + 2e^-$ $E^\circ_{ox} = +0.403$

$E^\circ_{cell\ rxn} = +1.030V$

Cathode (+) Pd/e GER FAT RED CAT



(−) Pd/e Anode (EO- An Ox

Mar 29-7:38 AM

Spont rxn ΔG (−), ΔE (+)

JOULEs

$\Delta G = -nFE$

Volts = $\frac{J}{Coul.}$

OR

$\Delta G^\circ = -nFE^\circ$

Agent Gibbs

mole e- gained/lost when e- gained = e- lost (L.C.M)

Faraday constant $\frac{96{,}500\ J}{Mole\ e^-}$

EMF

Mar 29-8:06 AM

Find ΔG° for

$$Br^-_{(aq)} + F_{2(g)} \rightarrow F^-_{(aq)} + Br_{2(l)}$$

$2Br^- \rightarrow Br_2 + 2e^-$ $E^\circ_{ox} = -1.06$

$2e^- + F_2 \rightarrow 2F^-$ $E^\circ_{red} = +2.87$

$E^\circ_{cell} = +1.81$

$\Delta G^\circ = -nFE^\circ$

$= -(2)(96{,}500)(1.81)$

$= -349330\ J \sim -349\ kJ$ ΔG°

Mar 29-8:12 AM

$$\Delta G = \Delta G^\circ + RT \ln Q$$

$$\frac{-nFE}{-nF} = \frac{-nFE^\circ}{-nF} + \frac{RT \ln Q}{-nF}$$

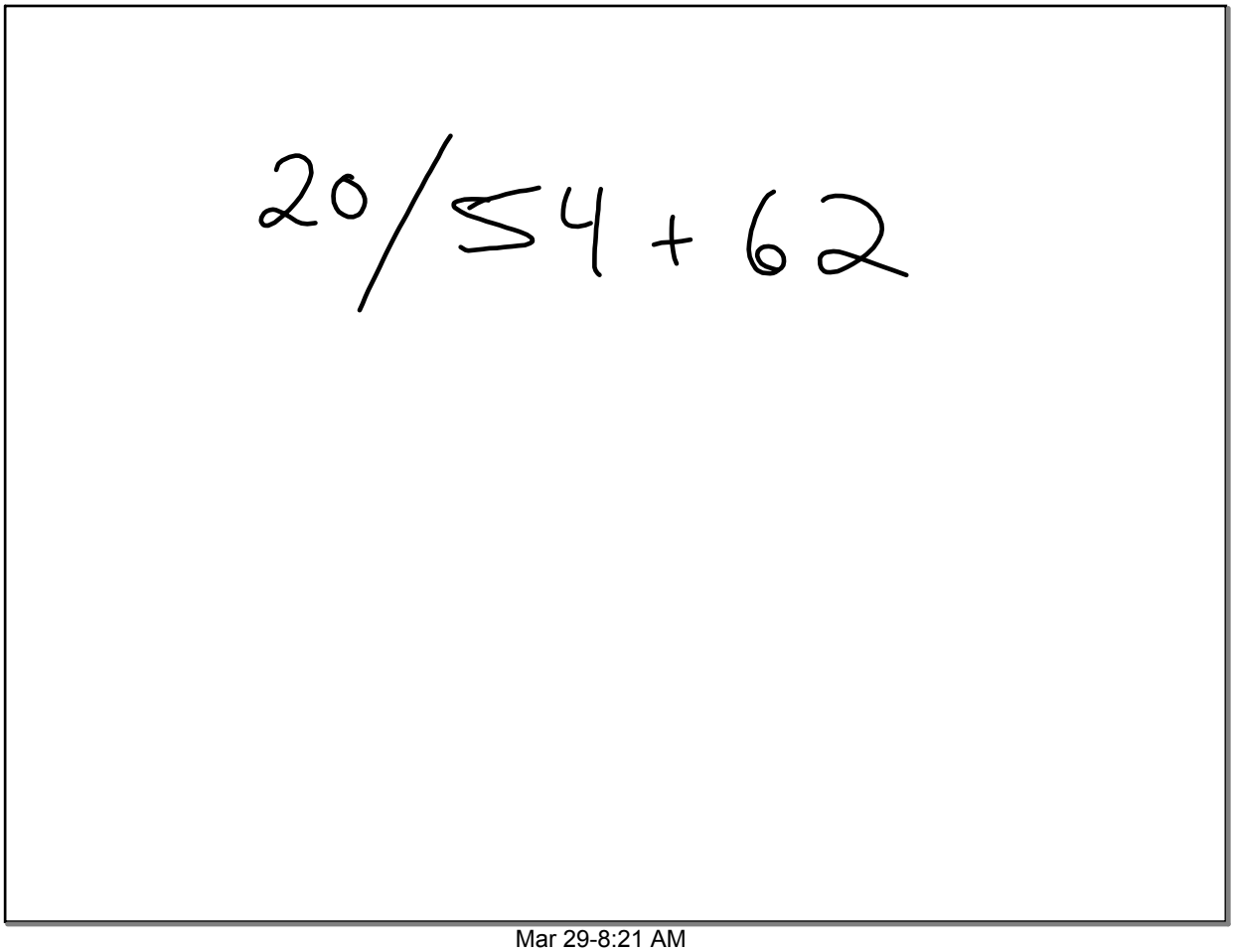
$$E = E^\circ - \frac{RT}{nF} \ln Q$$

$Q = \frac{[Prod]^{coeff}}{[Reac]^{coeff}}$

Table E

(g) and (aq)

Mar 29-8:17 AM



Mar 29-8:21 AM