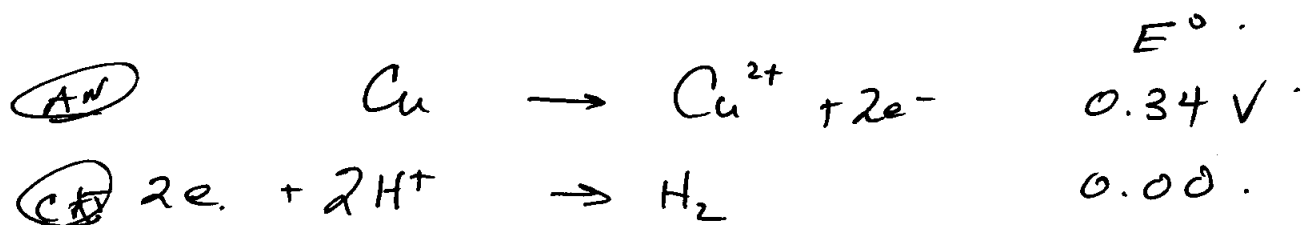


Reaction prediction?

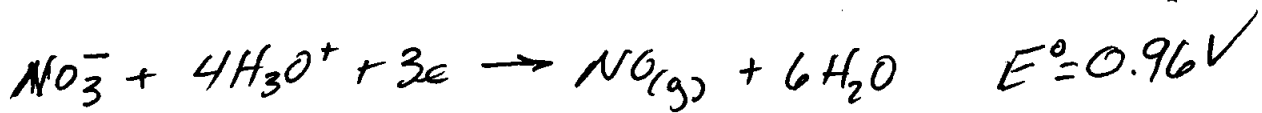
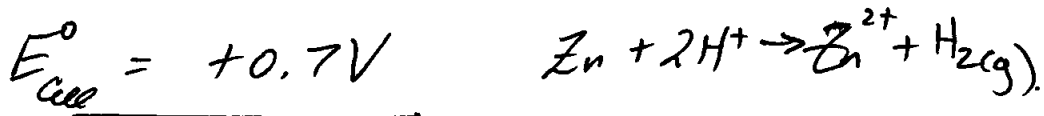
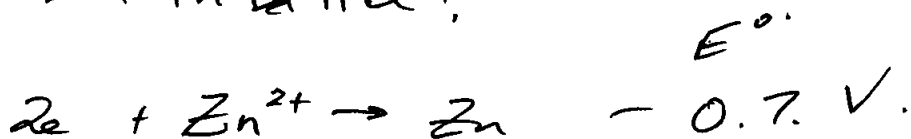
Can we dissolve Cu in HCl?



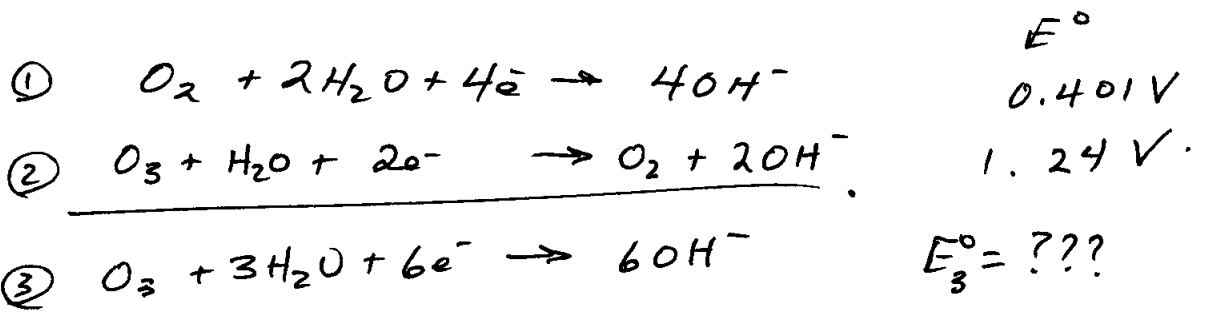
$$E_{\text{cell}}^\circ = E_{\text{cat}}^\circ - E_{\text{an}}^\circ = 0.0 - 0.34 = -0.34 \text{ V}$$

NO!

Zn in HCl?



Combining half-cell reactions.



$$\Delta G_3^\circ = \Delta G_1^\circ + \Delta G_2^\circ$$

$$-n_3 F E_3^\circ = -n_1 F E_1^\circ - n_2 F E_2^\circ$$

$$E_3^\circ = \frac{n_1 E_1^\circ + n_2 E_2^\circ}{n_3} \Rightarrow +0.96 V.$$