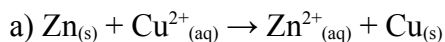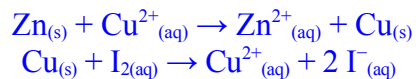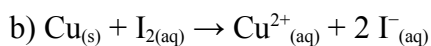Problema722: Usando la tabla de potenciales normales, calcula las constantes de equilibrio de las siguientes reacciones a 298K:

$$Zn_{(s)} + Cu^{2+}_{(aq)} \rightarrow Zn^{2+}_{(aq)} + Cu_{(s)}$$
$$Cu_{(s)} + I_{2(aq)} \rightarrow Cu^{2+}_{(aq)} + 2\ I^-_{(aq)}$$

a) $Zn_{(s)} + Cu^{2+}_{(aq)} \rightarrow Zn^{2+}_{(aq)} + Cu_{(s)}$

$E^o_{pila} = E^o_{cat} - E^o_{án} = E^o_{Cu2+/Cu} - E^o_{Zn2+/Zn} = +0,34 - (-0,76) = +1,10V$

$$K = 10^{\frac{nE^o}{0,0592}}$$

$$K = 10^{\frac{2 \cdot 1,10}{0,0592}} = \underline{\underline{1,45 \cdot 10^{37}}}$$

b) $Cu_{(s)} + I_{2(aq)} \rightarrow Cu^{2+}_{(aq)} + 2\ I^-_{(aq)}$

$E^o_{pila} = E^o_{cat} - E^o_{án} = E^o_{I2/I-} - E^o_{Cu2+/Cu} = +0,53 - (+0,34) = +0,19V$

$$K = 10^{\frac{nE^o}{0,0592}}$$

$$K = 10^{\frac{2 \cdot 0,19}{0,0592}} = \underline{\underline{2,62 \cdot 10^6}}$$