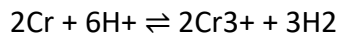


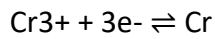
## Answer on Question #77578 - Chemistry - Physical Chemistry

Question:

A cell with the potential of 0.74 V has the cell reaction



If the concentrations of the ions were 1.0 molar and the pressure of  $\text{H}_2$  were 1.0 atmosphere, then the  $E_0$  for the half-reaction



would be

-0.74 V

-0.37 V

0.25 V

0.37 V

0.74 V.

**Solution:**

$$E = E_0 + (RT/nF) \ln(a_{\text{Ox}}/a_{\text{Red}});$$

$$E = E_0 + (0.059/n) \lg(a_{\text{Ox}}/a_{\text{Red}});$$

$$E_0 = E - (0.059/n) \lg(a_{\text{Ox}}/a_{\text{Red}});$$

$$E_0 = E - (0.059/n) \lg(1) = E_0 = E - 0 = E$$

So,  $E_0 = 0.74 \text{ V}$ .

**Answer:**  $E_0 = 0.74 \text{ V}$