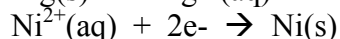
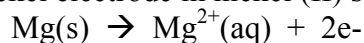


●Electrochemistry

Balance the equation showing the oxidation of Fe^{2+} ions to Fe^{3+} ions by dichromate ions ($\text{Cr}_2\text{O}_7^{2-}$) in an acidic medium where the dichromate ions are reduced to Cr^{3+} .

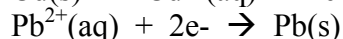
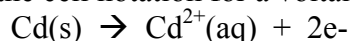
MnO_4^{1-} reacts with SO_3^{2-} to form MnO_2 and SO_4^{2-} . Write a balanced equation for the reaction in basic solution.

A voltaic cell is constructed from the following half cells: magnesium electrode in magnesium sulfate solution and nickel electrode in nickel (II) sulfate solution.



Sketch the cell, label the anode and cathode, and show the direction of electron flow.

Write the cell notation for a voltaic cell with the following half reactions:



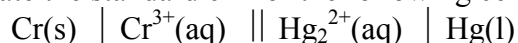
Write the overall cell reaction for the following voltaic cell.



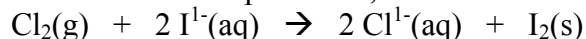
What is the maximum work you can obtain from 15.0 g of nickel in the following cell when the emf is 0.97 V?



Calculate the standard emf of the following cell at 25°C.



Using standard reduction potentials, find the standard free energy change for the following reaction.



Also, find K at 25°C.

Calculate the emf of the following cell at 25°C.

