

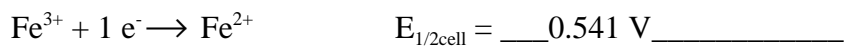
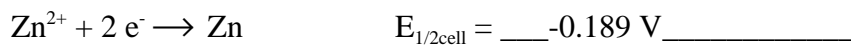
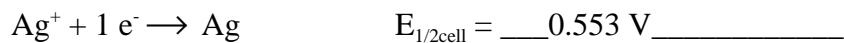
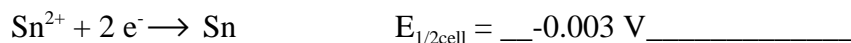
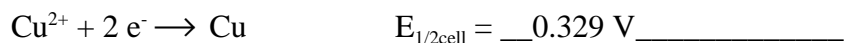
## 14c. ELECTROCHEMICAL CELLS

### SAMPLE DATA

9. Connect the red alligator lead to the electrode of the other half cells in turn repeating steps seven and eight for each.

Cell	Average $E_{\text{cell}}$	s
Pb-Cu	0.329	0.001
Pb-Sn	-0.003	0.001
Pb-Ag	0.553	0.001
Pb-Zn	-0.189	0.002
Pb-Fe	0.541	0.001

10. Assume that for the reaction,  $\text{Pb}^{2+} + 2 e^{-} \rightleftharpoons \text{Pb}$   $E_{1/2\text{cell}} = 0.00 \text{ V}$ . Based on this assumption give  $E_{\text{cell}}$  for each of the following: (Show your calculations.)



11. We will now measure the following pairs of half cells (the cell with the more positive  $E_{\text{cell}}^0$  should be connected as the cathode):

Ag-Cu, Ag-Sn, Ag-Zn, Ag-Fe  
Cu-Sn, Cu-Zn, Cu-Fe  
Sn-Zn, Sn-Fe  
Zn-Fe

Before measuring the cells, based on your answers to eleven above, predict the measured voltage expected and enter it into the table below.

Cell	Predicted $E_{\text{cell}}$	Measured $E_{\text{cell}}$	Difference(Predicted - Measure)
Ag-Cu	0.224	0.232	-0.008
Ag-Sn	0.556	0.553	0.003
Ag-Zn	0.742	0.661	0.081
Ag-Fe	0.012	0.010	0.002
Cu-Sn	0.332	0.327	0.005
Cu-Zn	0.518	0.622	-0.104
Cu-Fe	0.212	0.214	-0.002
Sn-Zn	0.186	0.281	-0.095
Sn-Fe	0.544	0.539	0.005
Zn-Fe	0.730	0.819	0.089