

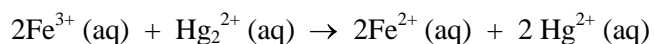
REVIEW QUESTIONS

Final Exam

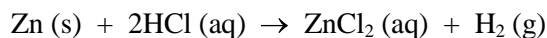
1. Calculate the quantity of work (in kJ) associated with the compression of a gas from 5.62 L to 3.37 L by a constant pressure of 1.23 atm. (note 1 L atm = 101 J)

2. For a certain reaction, $\Delta H = 45 \text{ kJ}$ and $\Delta S = 125 \text{ J/K}$. Is this reaction spontaneous at 90°C ? Support your answer with calculations or explanation.

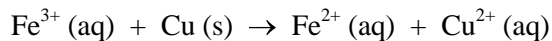
3. The equilibrium constant (K_c) for the reaction shown below is 9.1×10^{-6} at 25°C . What is ΔG° for this reaction at this temperature?



4. Write half reactions and cell notation for a cell that has the following overall reaction:



5. Calculate the equilibrium constant K for the following reaction at 25°C from standard electrode potentials.



6. Calculate the cell potential of a cell of a cell operating with the following reaction at 25°C , in which $[\text{MnO}_4^-] = 0.010\text{M}$, $[\text{Br}^-] = 0.010\text{M}$, $[\text{Mn}^{2+}] = 0.15 \text{ M}$, and $[\text{H}^+] = 1.0 \text{ M}$.

