Electrochem review part 1

1. Consider the following two reactions:

SO3 2- 🡪 SO4 2-

MnO4 - 🡪 Mn 2+

1. Which reaction is the oxidation, and which is the reduction?
2. Balance each half reaction and add them together to get the net equation in both acidic and basic solution
3. A piece of iron wire weighing 0.21 g is converted to Fe 2+ and titrated with 22.12 mL of permanganate solution. What is the molarity of the permanganate?

(the balanced reaction) 5 Fe 2+ + MnO4- + 8 H + 🡪 5 Fe 3+ + Mn 2+ + 4 H2O

1. Using solid gold as one of your electrodes, make a 1.95 V electrochemical cell. Your cell must:
   1. Work ☺
   2. Have the anode and cathode labeled
   3. Site of oxidation and reduction shown
   4. All present ions shown
   5. The half reactions shown at the correct electrode
   6. The half reactions added together to show the voltage of the battery
   7. The direction of electron travel
2. A solution of aqueous Calcium Bromide is placed in an electrolytic cell.
   1. Draw the cell
   2. Label the anode and cathode
   3. Where does reduction and oxidation take place?
   4. Write all possible reactions that can occur at each electrode
   5. What products will actually be found at each electrode?
   6. What is the voltage requirement for this reaction to occur?