Name(s): _____

Electrochemistry Worksheet I

1. Select two standard half reactions for metal ion reductions from a table of standard half-cell potentials ***(other than copper or nickel)***. Write the half reactions below.

   a) Which substance is the reducing agent? _____ Which substance is reduced?_____

   b) Write a complete oxidation–reduction equation from the two half reactions.

   c) Draw and label a sketch of the voltaic (galvanic) cell that results.

   d) Calculate the standard potential for the reaction.

   e) Calculate the potential when the concentration of the reducing agent is 1.0×10^{-4} M and the concentration of the oxidizing agent is 1.0 M.

2. Review the concepts of electron charge, coulombs, and faradays in your textbook before answering the following questions.

   a) How many faradays of charge are in one mole of electrons?

   b) How many faradays of charge does a single electron have?

   c) How many coulombs are in one mole of electrons?

2. a) What are the differences among voltaic, galvanic, and electrolytic cells?

   b) Clearly define the difference between a reducing agent and a substance that becomes reduced.