

Unit 5 – Chapter 16: Electrochemistry

Name _____

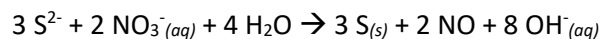
Assignment #3: E^0 , ΔG , K Calculations for Voltaic Cells

Period _____

1) For a certain cell, $E^0 = 1.20$ V. Calculate ΔG^0 if n is

- a. 1
- b. 2
- c. 3

2) Calculate E^0 , ΔG^0 , and K at 25°C for the reaction



3) Calculate ΔG^0 at 25°C for each of the reactions referred to in each of the following reactions below. Assume smallest whole-number coefficients.

- a. $\text{Pb}(\text{s}) + 2 \text{Ag}^{+}(\text{aq}) \rightarrow \text{Pb}^{2+}(\text{aq}) + 2 \text{Ag}(\text{s})$
- b. $\text{O}_2(\text{g}) + 4 \text{Fe}^{2+}(\text{aq}) + 4 \text{H}^{+}(\text{aq}) \rightarrow 2 \text{H}_2\text{O} + 4 \text{Fe}^{3+}(\text{aq})$
- c. A Cd-Cd²⁺ half-cell and a Zn-Zn²⁺ half-cell

4) Calculate K at 25°C for each of the reactions referred to below. Assume smallest whole-number coefficients.

- a. chromium (II) ions and tin (IV) ions to produce chromium (III) ions and tin (II) ions
- b. manganese (II) ions and hydrogen peroxide to produce solid manganese dioxide (MnO_2).