

Chemistry CP

Name: _____

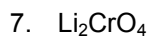
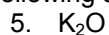
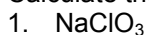
Review Sheet: Redox

Date: _____

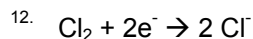
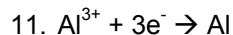
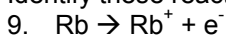
As you study this chapter, you should be able to do the following:

- Define oxidation and reduction in terms of the loss or gain of electrons
- Identify the oxidizing and reducing agent in a redox reaction
- Compute the oxidation number of an atom of any element in a pure substance
- Define oxidation and reduction in terms of a change in oxidation number
- Identify atoms being oxidized or reduced in redox reactions
- Use half-reactions to balance simple redox reactions
- Distinguish between redox and non-redox reactions
- Explain a voltaic (galvanic) cell using a sketch, labeling the anode, the cathode, and the direction of electron flow.
- Compute the standard cell potential using standard electrode potentials.
- Determine whether a redox reaction is spontaneous as written.
- Distinguish between electrolytic and voltaic cells.

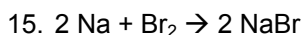
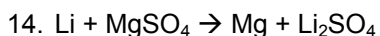
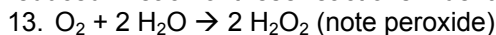
Calculate the oxidation number of each atom in the following substances.

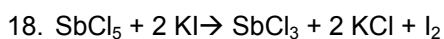
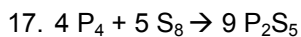


Identify these reactions as oxidation or reduction.

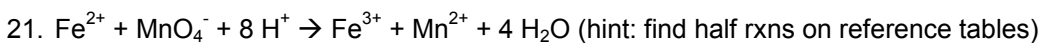
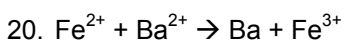
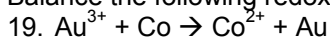


Use the change in oxidation number to identify which elements are oxidized and which are reduced in each of these reactions. Identify the oxidizing and reducing agents.

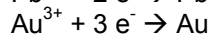
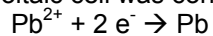




Balance the following redox reactions.



22. A voltaic cell was constructed using electrodes based on the following half reactions.



a. Draw and label the voltaic cell, including the cathode, anode, salt bridge, and direction of electron flow.

b. Write the half reaction that occurs at each electrode.

Anode:

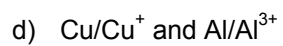
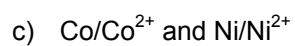
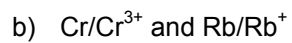
Cathode:

c. Write the overall redox reaction for this cell.

d. Calculate the cell potential.

23. Balance the equations and calculate the cell voltage for the following cells. Use the standard reduction potentials.

a) Fe/Fe^{2+} and Pb/Pb^{2+}



24. Use the standard reduction potentials to determine whether these reactions occur spontaneously (i.e., as a galvanic cell) or nonspontaneously (as an electrolytic cell).

