Oxidation and Reduction

Directions: Complete each of the following statements with the appropriate term(s).

1) Oxidation occurs when an atom loses electrons.

2) Reduction is a process that results in the gain of electrons.

3) The oxidation number of an atom that has undergone oxidation will increase, while the oxidation number of an atom that has undergone reduction will decrease_.

4) Redox reactions involve the movement of electrons.

Identifying Oxidation and Reduction

Directions: For problems 1-4 label each of the following half-reactions as oxidation or reduction (Remember: LEO GER or OIL RIG).

1. $O^{2-} \rightarrow O^{-} + e^{-}$ oxidation

2. $Al^{3+} + 3e^{-} \rightarrow Al^{0}$ reduction

3. $I^{0} + e^{-} \rightarrow I^{-}$ reduction

4. $Cl^{-} \rightarrow Cl^{4+} + 4e^{-}$ oxidation

- **Identify if problems 5-8 are redox reactions (both oxidation and reduction must occur).**
- **Then, identify the type of chemical reaction (i.e. decomposition, double replacement, etc.) for each of the reactions.**

5. $2HI \rightarrow H_2 + I_2$ redox (decomposition)

6. $2HCl + MgBr_2 \rightarrow 2HBr + MgCl_2$ NOT REDOX (double replacement)

7. $Zn + 2HCl \rightarrow ZnCl_2 + H_2$ redox (single replacement)

8. $HCl + KOH \rightarrow H_2O + KCl$ NOT REDOX (double replacement)