# Rules for Determining Oxidation Numbers: Chem 111 Redox Worksheet

Oxidation = loss of electrons

Reduction = gain of electrons Zn (s) + Cu2+(aq) 🡪 Zn2+(aq) + Cu(s)

Oxidizing agent = oxidant = gains electrons

Reducing agent = reductant = loses electrons



Oxidation Number Examples:

1. O in O2 5. O in OF2

2. N in NO2 6. Cl in NaOCl

3. N in NO3- 7. O in H2O

4. Na in NaCl 8. H in H2O

*Recognizing* Oxidation-Reduction Reactions

Oxidation = loss of electrons = increase in ox #

Reduction = gain of electrons = decrease in ox #

 4 Fe + 3 O2 🡪 2 Fe2O3

Examples:

N2 + 2 O2 🡪 N2O4

Pb(s) + PbO2(s) + 2 H2SO4(aq) 🡪 2 PbSO4(s) + 2 H2O(l)

MnO4-(aq) + 5 Fe2+(aq) + 8 H+(aq) 🡪 Mn2+(aq) + 4 H2O() + 5 Fe3+(aq)

2 H2O2(aq) 🡪 O2(g) + H2O(l)

CaCO3(s) 🡪 CaO(s) + CO2(g)