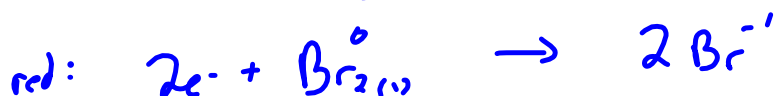
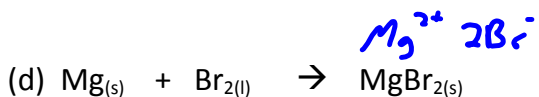
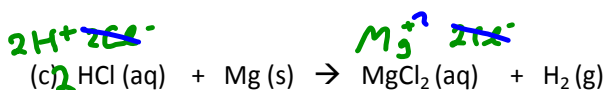
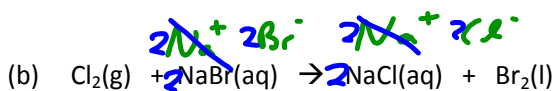
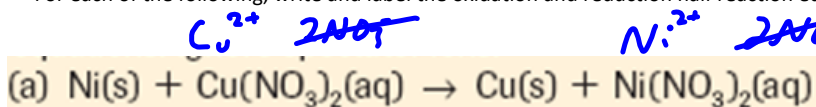


Practice Sheet 1

For each of the following, write and label the oxidation and reduction half reaction equations. Ignore spectator ions.



Writing Half Reactions for Complex Redox Reactions

Most metals and nonmetals have relatively simple half-reaction equations, polyatomic ions and molecular compounds undergo more complicated oxidation and reduction processes.

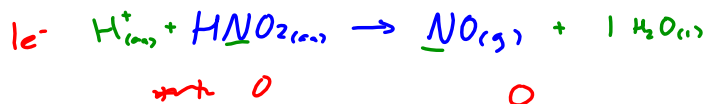
In most of these processes, the reaction takes place in an aqueous solution that is acidic

SUMMARY *Writing Half-Reaction Equations*

- Step 1: Write the chemical formulas for the reactants and products.
- Step 2: Balance all atoms, other than O and H.
- Step 3: Balance O by adding $H_2O(l)$.
- Step 4: Balance H by adding $H^+(aq)$.
- Step 5: Balance the charge on each side by adding e^- and cancel anything that is the same on both sides.

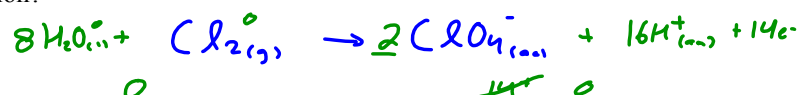
Example 1

Nitrous acid can be reduced in an acidic solution to form nitrogen monoxide gas. What is the reduction half-reaction for nitrous acid?



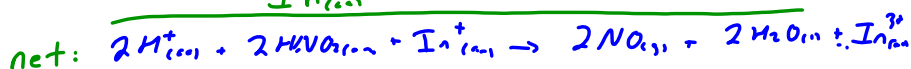
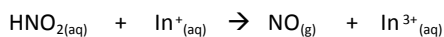
Example 2

Chlorine is converted to perchlorate ions in an acidic solution. Write the half-reaction equation. Is this half-reaction an oxidation or a reduction?



Example:

Write the reduction, oxidation and net reaction for the incomplete redox reaction below that occurs in acidic conditions



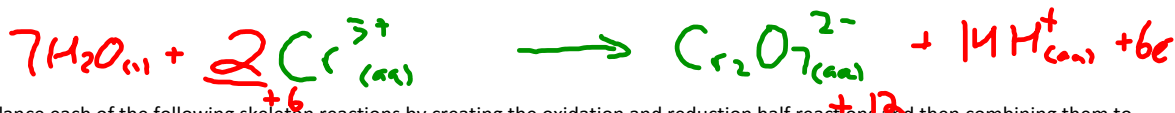
Practice Sheet 2

1. Complete the following half reactions and classify them as a oxidation or reduction

a. dinitrogen tetraoxide reacts to form nitrogen gas in an acidic solution

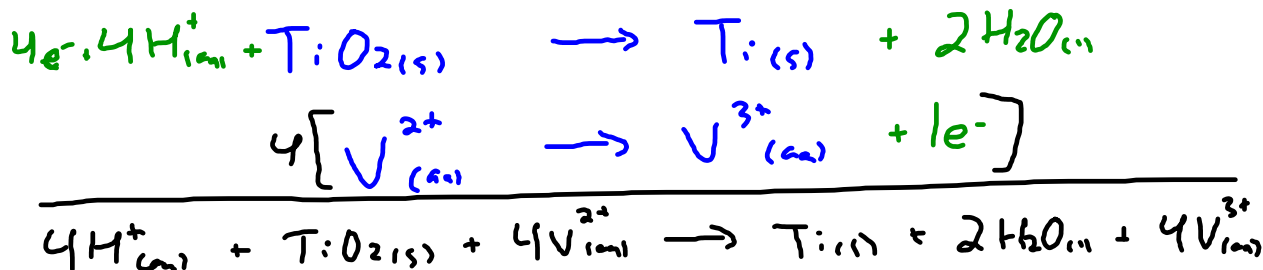


b. chromium (III) ions are converted to dichromate ions in an acidic solution

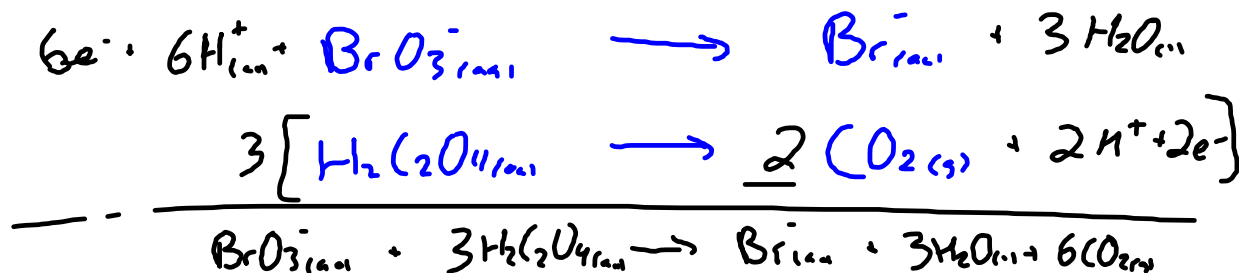


2. Balance each of the following skeleton reactions by creating the oxidation and reduction half reactions and then combining them to get the complete redox reaction. Be sure to label each half reaction as oxidation or reduction.

a. $TiO_2(s) + V^{2+}(aq) \rightarrow Ti(s) + V^{3+}(aq)$



b. $BrO_3^-(aq) + H_2C_2O_4(aq) \rightarrow Br^-(aq) + CO_2(g)$



c. $OF_2(aq) + I^-(aq) \rightarrow F^-(aq) + I_3^-(aq)$

