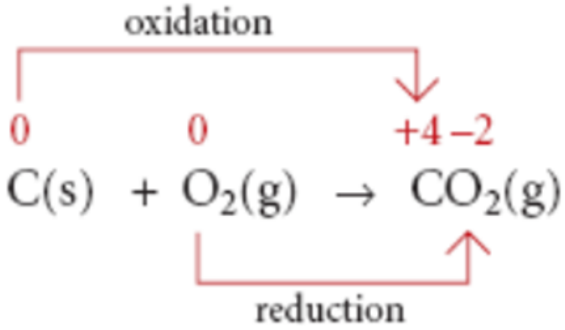
Balancing Reactions using Oxidation Numbers

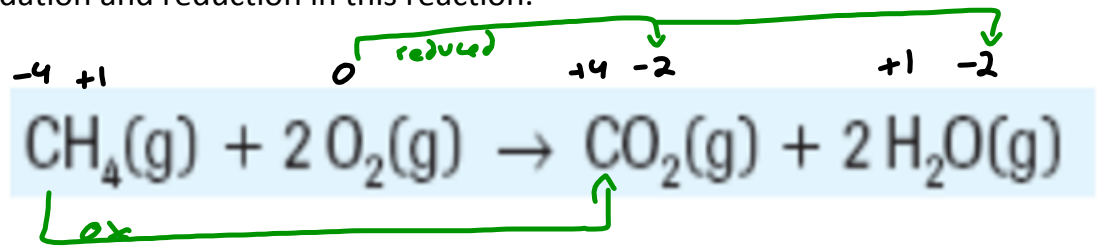
We can use oxidation numbers to help us figure out what is oxidized and what is reduced in a redox reaction

Based on oxidation numbers:

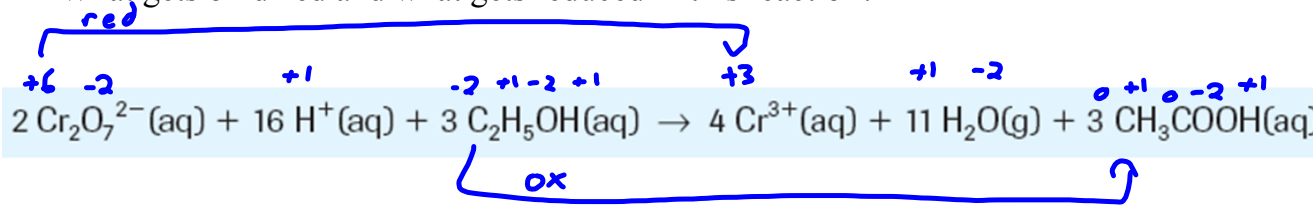
- an **increase** in the oxidation number is defined as **oxidation**
  - ↳ more + ive
- a **decrease** in the oxidation number is a **reduction**
  - ↳ more - ive



Example:
When natural gas burns in a furnace, carbon dioxide and water form. Identify oxidation and reduction in this reaction.



Example:
What gets oxidized and what gets reduced in this reaction?



We can also use oxidation numbers to help us balance redox reactions

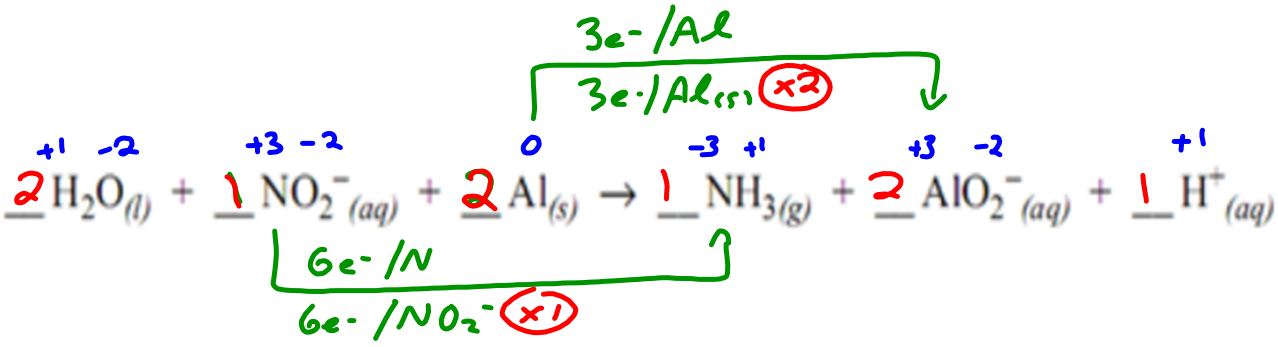
Steps:

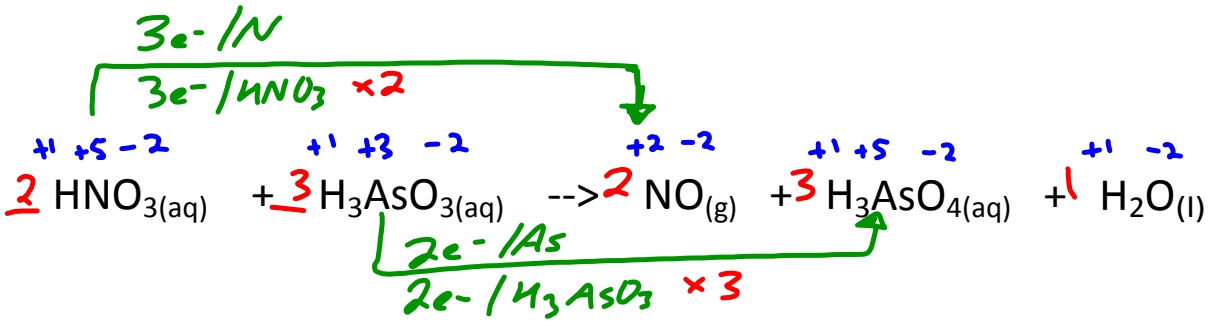
1. The first step is to assign oxidation numbers to all atoms/ions and look for the numbers that change. Circle or highlight the oxidation numbers that change.

2. Specify the change in the number of electrons per molecule

3. Determine the simplest whole numbers that will balance the number of electrons transferred for each reactant. The numbers become the coefficients for the reactants.

4. Balance the rest of the reaction like normal.





Pracce Sheet 6

Balance the following reactions using the oxidation number method