

Worksheet 7 - Oxidation/Reduction Reactions

Oxidation number rules:

Elements have an oxidation number of **0**

Group I and II – In addition to the elemental oxidation state of 0, Group I has an oxidation state of **+1** and Group II has an oxidation state of **+2**.

Hydrogen – usually **+1**, except when bonded to Group I or Group II, when it forms hydrides, **-1**.

Oxygen – usually **-2**, except when it forms a O-O single bond, a peroxide, when it is **-1**.

Fluorine is always **-1**. Other halogens are usually **-1**, except when bonded to O.

1. Assign **oxidation numbers** to each of the atoms in the following compounds:

Na_2CrO_4 Na = O = Cr =

$\text{K}_2\text{Cr}_2\text{O}_7$ K = O = Cr =

CO_2 O = C =

CH_4 H = C =

HClO_4 O = H = Cl =

MnO_2 O = Mn =

SO_3^{2-} O = S =

SF_4 F = S =

- What is the range of oxidation states for **carbon**?
- Which compound has C in a +4 state?
- Which compound has C in a -4 state?