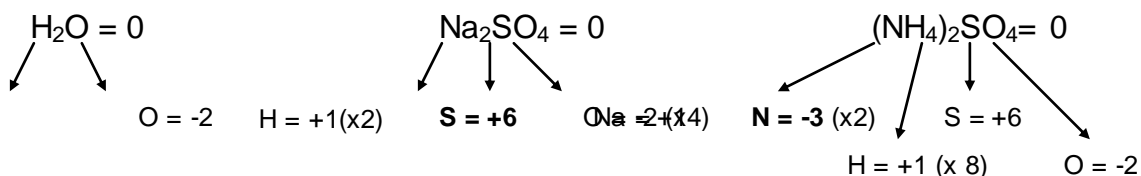
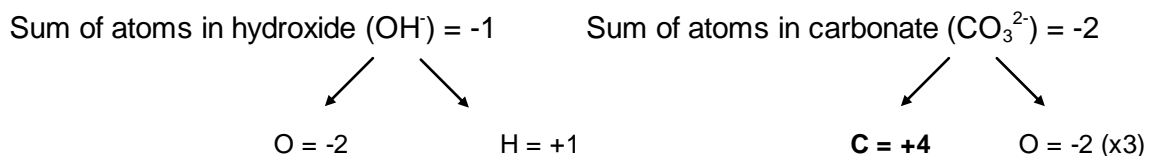


Rules for Assigning Oxidation Numbers

1. The oxidation number for an atom of any **free (uncombined) element** or element in self combination is **ZERO (0)**.
 - Na, Ca, C = 0.
 - H in H₂, O in O₂, P in P₄ = 0.
2. Group 1 (Alkali metals) in compounds / ions = **+1**.
 - Na in NaH = +1, Li in Li₂SO₄ = +1
3. Group 2 (Alkali Earth metals) in compounds/ions = **+2**.
 - Ca in CaH₂ = +2, Mg in MgSO₄ = +2
4. Group 17 (Halogens) in compounds / ions = **-1** unless bonded to a more electronegative element
5. Hydrogen in compounds / ions, **H = +1**.
 - H in HCl, HF, H₂O, OH⁻ = +1,
 - Exception: **H = -1** when bonding with Group 1 or Group 2 metals
e.g. NaH, LiH, CaH₂, MgH₂
6. Oxygen in compounds/ions = -2
 - O in Na₂O, OH⁻, SO₄²⁻ = -2,
 - Exception: **O = -1** in peroxides (H₂O₂)
7. **Sum of oxidation numbers of all atoms in the formula for a compound is ZERO.**



8. **Sum of oxidation numbers of all atoms in the formula of an ion / complex ion is equal to charge on that ion.**
 - Na in Na⁺ = +1, O in O²⁻ = -2



9. **Negative oxidation numbers** in compounds of two unlike atoms is **assigned to the more electronegative atom.**

