

Short version

1. Elements = 0
2. Monoatomic ion = 0

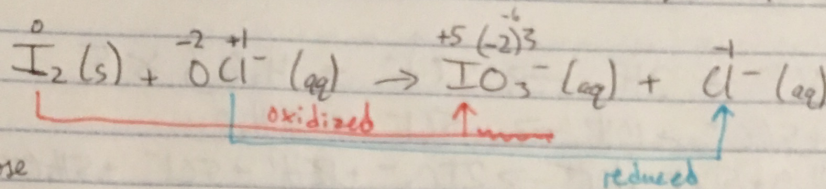
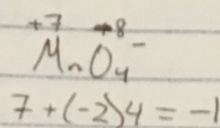
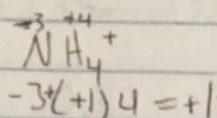
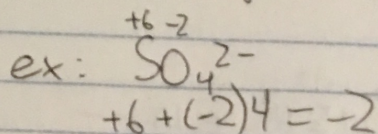
3. F: -1

4. O: -2
(unless peroxide = -1)

5. H: +1 (unless metal hydroxide = -1)

6. Sum of oxid. #s
= overall charge
(0 in compounds)

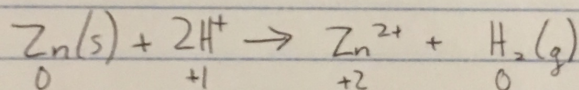
- c) Hydrogen (H) has oxid # +1, except in compounds w/ alkali ~~metals~~ or alkali earth metals
- d) Fluorine has oxid # -1
- e) Oxygen has oxid # -2, unless w/ F
- f) Other halogens have (-1) except w/ F or O



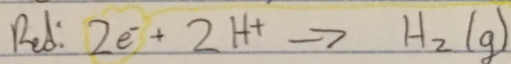
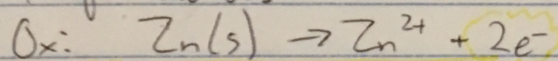
Lose
Electrons
Oxidation
says
Gain
Electrons
Reduced

"Nitric Acid acts upon copper" Ira Rensen

- Chem prof @ Williams College, 1872-1876
 - Accidentally synthesized saccharin in 1878
 - President of Johns Hopkins University (1901-1912)
- $2\text{HNO}_3(\text{aq}) + \text{Cu}(\text{s}) \rightarrow \text{Cu}^{2+}(\text{aq}) + 2\text{NO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{l})$



Half Reactions



e- # equal

Balancing Redox Rxns

- 1) Make 2 half-rxns
- 2) Balance atoms other than O and H, then balance O and H w/ $\text{H}_2\text{O}/\text{H}^+$
- 3) Add e^- to balance charge
- 4) Multiply by common factor to make e^- in $\frac{1}{2}$ rxn =
- 5) Add $\frac{1}{2}$ rxns
- 6) Simplify by dividing by common factor or converting H^+ to OH^- if basic
- 7) Double-check atoms and charges balance!