

Common Ions and their Charge			
+1	+2	+3	+4
ammonium, $\text{NH}_4^+$ copper (I) $\text{Cu}^+$ potassium, $\text{K}^+$ silver, $\text{Ag}^+$ sodium, $\text{Na}^+$ Lithium, $\text{Li}^+$ Hydronium $\text{H}_3\text{O}^+$ Nitronium, $\text{NO}_2^+$	barium, $\text{Ba}^{2+}$ Calcium, $\text{Ca}^{2+}$ Copper (II), $\text{Cu}^{2+}$ iron (II), $\text{Fe}^{2+}$ lead (II), $\text{Pb}^{2+}$ magnesium, $\text{Mg}^{2+}$ mercury(I), $\text{Hg}_2^+$ mercury (II), $\text{Hg}^{2+}$ nickel(II), $\text{Ni}^{2+}$ zinc, $\text{Zn}^{2+}$	aluminum, $\text{Al}^{3+}$ chromium(III), $\text{Cr}^{3+}$ iron(III), $\text{Fe}^{3+}$ antimony, $\text{Sb}^{3+}$	titanium, $\text{Ti}^{4+}$
-1	-2	-3	
acetate, $\text{C}_2\text{H}_3\text{O}_2^-$ bromide, $\text{Br}^-$ chlorate, $\text{ClO}_3^-$ chloride, $\text{Cl}^-$ fluoride, $\text{F}^-$ hydrogen carbonate, $\text{HCO}_3^-$ hydrogen sulfate, $\text{HSO}_4^-$ hydroxide, $\text{OH}^-$ iodide, $\text{I}^-$ nitrate, $\text{NO}_3^-$ nitrite, $\text{NO}_2^-$ hydride, $\text{H}^-$ cyanide, $\text{CN}^-$	carbonate, $\text{CO}_3^{2-}$ chromate, $\text{CrO}_4^{2-}$ dichromate, $\text{Cr}_2\text{O}_7^{2-}$ oxide, $\text{O}^{2-}$ peroxide, $\text{O}_2^{2-}$ sulfate, $\text{SO}_4^{2-}$ sulfide, $\text{S}^{2-}$ sulfite, $\text{SO}_3^{2-}$	phosphate, $\text{PO}_4^{3-}$	

### Summary of oxidation-number rules

- 1) The oxidation number of an atom of a free element is zero
- 2) The oxidation number of a monoatomic ion is equal to its charge
- 3) The algebraic sum of the oxidation numbers of the atoms in the formula of a compound is zero
- 4) In compounds, the oxidation number of hydrogen is +1, except in metallic hydrides, where it's oxidation number is -1
- 5) In compounds, the oxidation number of oxygen is -2, except in peroxides, where it's oxidation number is -1. In compounds with fluorine, oxygen is the less electronegative element and has a positive oxidation number, +2
- 6) In combinations involving nonmetals, the oxidation number of the less electronegative element is positive, and that of the more electronegative element is negative
- 7) The algebraic sum of the oxidation numbers of the atoms in the formula of a polyatomic ion is equal to its charge.