Determining Charges on Monatomic Ions

- 1. Metals form cations; nonmetals form anions.
- 2. Main-group metals tend to form cations with charges equal to their group number (North American system).

Examples: Na⁺ (Group 1A, 1+) Mg²⁺ (Group 2A, 2+) Al³⁺ (Group 3A, 3+)

3. Nonmetals tend to form anions with charges equal to their group number minus 8.

Examples:	F⁻ (Group 7A, 7 - 8 = -1)
	O^{2-} (Group 6A, 6 - 8 = -2)
	N ³⁻ (Group 5A, 5 - 8 = -3)

4. Transition metals and some heavier main group elements can form more than one kind of cation.

Examples:	Cu ⁺ & Cu ²⁺
•	Fe ²⁺ & Fe ³⁺
	Co ²⁺ & Co ³⁺
	Cr ²⁺ & Cr ³⁺
	TI ⁺ & TI ³⁺

5. Ionic charges greater than ±3 are not real. Compounds in which an element might be assigned such high charge are probably molecular (or less commonly, network solids).