

Topic IV Test (Nomenclature) Overview

- Nomenclature
- Oxidation #'s
- Percent Composition

Monatomic Ions:

Cations	Anions
+ ions	- ions
lose e-	gain e-
metals	nonmetals

Representative or Main Group
("s" & "p" block)

Cations:

*Name metal + ion

Li+ Lithium ion

Ca²⁺ Calcium ion

Al³⁺ aluminum ion

Anions:

base + -ide ion

N³⁻ nitride ion

S²⁻ sulfide ion

I⁻ iodide ion

Transition Metals; (Group 3-12)

lose e-

multivalent: form cation with more than one charge

Pb²⁺ Lead (II) ion

Pb³⁺ Lead(III) ion

Click on an element for more information

1	1																	18	
1	H	2	He																
2	3	2	4	13	14	15	16	17	18										
2	Li	Be	B	C	N	O	F	Ne											
3	11	12	13	14	15	16	17	18											
3	Na	Mg	Al	Si	P	S	Cl	Ar											
4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
5	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
6	55	56	*	6	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
6	Cs	Ba		Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
7	87	88	**	7	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
7	Fr	Ra		Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Uub	Uut	Uuq	Uup	-	-	-	
LANTHANIDE SERIES			6	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	
LANTHANIDE SERIES			6	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	
ACTINIDE SERIES			7	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	
ACTINIDE SERIES			7	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr	

Cr⁴⁺ Chromium(IV) ion

Stock System:

Transition compounds (metals 3-12)

I VI
II VII
III
IV
V

****NEED TO KNOW****

Do **NOT** use stock system :

- Zn ²⁺
- Cd ²⁺
- Ag ⁺

Examples:

CaO calcium oxide

MgI₂ Magnesium iodide

Al₂O₃ Aluminum oxide

AlCl₃ Aluminum chloride

CuCl Copper(I) chloride

SnBr₃ Tin(IV) bromide

K₃S Potassium sulfide

(For more examples look at notes)

Covalent (molecular) Compound

*2 nonmetals

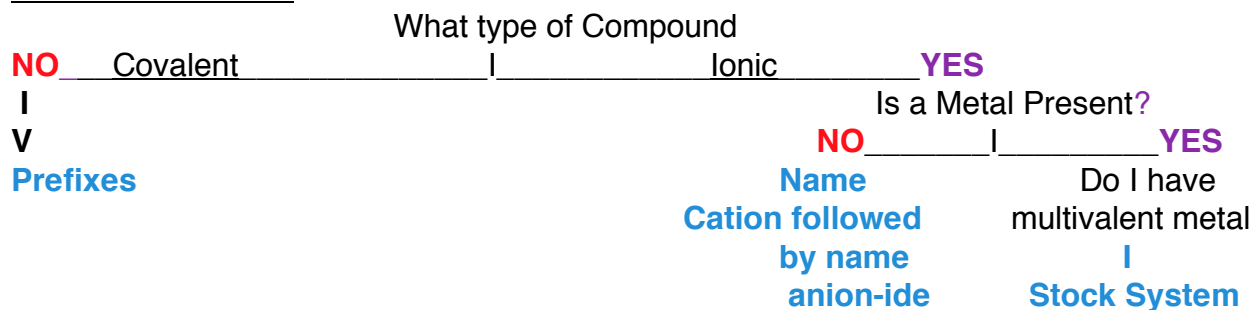
*Never have polyatomic ions

System of Prefixes

1-mono	6-hexa
2- di	7-hepta
3-tri	8-octa
4-tetra	9-nona
5-penta	10-deca

(Look at notes for examples)

ASK: _____



Acids:

* Contain 1 or more H atoms

* Starts w/ "H"

* **H_nX**

H: atom

n: # of atoms

X: anion monatomic
polyatomic



Anion Ending	Example of an anion	Acid (name) rule	Example of acid	Formula of Acid
-ide	Chloric Cl- Fluoride F- Phosphide P ³⁻	hydro(stem) -ic acid	hydrochloric acid hydrofluoric acid hydrophosphoric acid	HCl HF H ₃ P
-ite	Sulfite SO ₃ ²⁻ Nitrite NO ₂ ⁻	Stem-ous	Sulfurous acid nitrous acid	H ₂ SO ₃ HNO ₂
-ate	Sulfate SO ₄ ²⁻ PO ₄ ³⁻	stem-ic	Sulfuric acid Phosphoric acid	H ₂ SO ₄ H ₃ PO ₄

Rules For Oxidation #'s

1. Elemental state is **0**
2. Monatomic Ion = **ionic charge**
3. Oxygen = **-2**
 - **Except:** Elemental state (0), Peroxides (-1)
4. Hydrogen = **+1**
 - **Except:** Elemental State (0), Metal hydride (NaH, CaH₂)
5. Binary Compounds more electronegative element is assigned an oxidation # = to **anion charge**
 - F > O > N > Cl
6. Sum Oxidation #'s in compound = **0**
7. Sum Oxidation #'s polyatomic ion = **ion's charge**

