

Name:.....Class:.....ID:.....
 School:.....Date:.....

Writing Chemical Formula of Compounds:

Chemical formula is a symbolic representation of a molecule's composition. It indicates:

- (a) the elements that are present in the compound and
- (b) the ratio of these elements in the compound.

A chemical formula is also called **molecular formula**. The symbols in the molecular formula tell us about the elements and the subscript tells us how many atoms of that element are present in one molecule.

Rules for writing a chemical formula:

Step 1: Write down the symbols of the elements / ions, which combine to form a molecule of the compound, side by side. While writing the formula of a compound containing a metal and a non-metal, the symbol of the metal is written first followed by that of the non-metal. *Two metals do not join up to form compounds.*

Step 2: Write the valency of each element / ion.

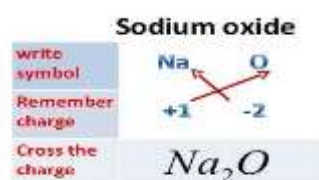
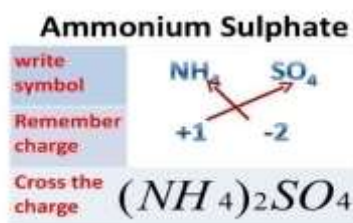
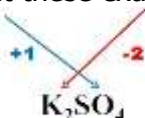
Step 3: Interchange the valences of the elements / ions and write as the subscript. Write them close together and ignore '1' to obtain the formula.

Step 4: The radical / polyatomic ions must be written in brackets, before the subscript is written. In case the number of polyatomic ions is one, the bracket is not required. For example – NaOH.

Step 5: Whenever applicable, write simple ratios of the valences.

Step 6: The final formula must be written without any sign of the charge.

Look at these examples:



Exercise:

Write the chemical formula of each of the following compounds:

No	Chemical name	Chemical formula
Magnesium compounds (Mg^{+2})		
1	Magnesium bromide	
2	Lead hydroxide	
3	Lead sulphate	
4	Silver chloride	
5	Barium fluoride	
6	Lithium sulphide	
7	Magnesium nitride	
8	Magnesium fluoride	

9	Magnesium chloride	
10	Magnesium iodide	
11	Magnesium oxide	
12	Magnesium phosphide	
13	Magnesium nitrate	
14	Magnesium carbonate	
15	Magnesium hydrogen carbonate	
16	Magnesium sulphite	
17	Magnesium sulphate	
18	Magnesium phosphite	
19	Magnesium hydroxide	
Sodium compounds (Na ⁺)		
20	Sodium fluoride	
21	Sodium chloride	
22	Sodium bromide	
23	Sodium iodide	
24	Sodium oxide	
25	Sodium sulphide	
26	Sodium nitride	
27	Sodium phosphide	
28	Sodium nitrate	
29	Sodium carbonate	
30	Sodium hydrogen carbonate	
31	Sodium sulphite	
32	Sodium sulphate	
33	Sodium phosphate	
34	Sodium hydroxide	
Aluminium compounds (Al ⁺³)		
35	Aluminium chloride	
36	Aluminium bromide	
37	Aluminium fluoride	
38	Aluminium iodide	
39	Aluminium oxide	
40	Aluminium sulphide	

41	Aluminium nitride	
42	Aluminium phosphide	
43	Aluminium nitrate	
44	Aluminium carbonate	
45	Aluminium phosphate	
46	Aluminium sulphite	
47	Aluminium sulphate	
48	Aluminium hydroxide	
49	Aluminium hydrogen carbonate	
Calcium compounds (Ca^{+2})		
50	Calcium fluoride	
51	Calcium chloride	
52	Calcium bromide	
53	Calcium iodide	
54	Calcium oxide	
55	Calcium sulphide	
56	Calcium nitride	
57	Calcium phosphide	
58	Calcium nitrate	
59	Calcium carbonate	
60	Calcium hydrogen carbonate	
61	Calcium sulphite	
62	Calcium sulphate	
63	Calcium phosphate	
64	Calcium hydroxide	
Zinc Compounds (Zn^{+2})		
65	Zinc bromide	
66	Zinc fluoride	
67	Zinc chloride	
68	Zinc oxide	
69	Zinc iodide	
70	Zinc sulphide	
71	Zinc nitride	
72	Zinc phosphide	

73	Zinc nitrate	
74	Zinc carbonate	
75	Zinc hydrogen carbonate	
76	Zinc sulphite	
78	Zinc sulphate	
79	Zinc phosphate	
80	Zinc hydroxide	
Iron (III) compounds (Fe^{+3})		
81	Iron (III) fluoride	
82	Iron (III) chloride	
83	Iron (III) bromide	
84	Iron (III) iodide	
85	Iron (III) oxide	
86	Iron (III) nitride	
87	Iron (III) sulphide	
88	Iron (III) phosphide	
89	Iron (III) nitrate	
90	Iron (III) carbonate	
91	Iron (III) hydrogen carbonate	
92	Iron (III) sulphite	
93	Iron (III) sulphate	
94	Iron (III) phosphate	
95	Iron (III) hydroxide	

Circle the correct answer:

1. The symbolic representation of a molecule's composition is called:

- a) Chemical equation
- b) Chemical reaction
- c) Chemical formula.
- d) None of the above

2. Which formula of the following best represents the reaction between Barium nitrate?

- a) Ba_2NO_3
- b) Ba_3NO_2
- c) BaNO_3
- d) $\text{Ba}(\text{NO}_3)_2$

3. Which substance does not have the correct formula?

- a) Iron (II) sulphate $\rightarrow \text{Fe}_2\text{O}_3$
- b) Iron (I) oxide $\rightarrow \text{Fe}_2\text{O}$
- c) Copper (I) sulphate $\rightarrow \text{Cu}_2\text{SO}_4$
- d) Copper (II) nitrate $\rightarrow \text{Cu}(\text{NO}_3)_2$

4. If we are writing the chemical formula of a compound containing a metal and non — metal, the symbol of the..... is written before the symbol of the.....

- a) Non — metal, metal
- b) Metal, non — metal
- c) Metal, ion
- d) Atom, metal

5. What is the name of this compound BaF_2 ?

- a) Beryllium fluoride
- b) Boron fluoride
- c) Bromine fluoride
- d) Barium fluoride