

Counting Atoms In Molecules

1. The **symbol** of an element represents one atom of that element.

e.g., Ca = calcium

2. A **subscript** is a number written at the **lower right** corner **behind the symbol** of an element. If there is more than one atom of the element in the molecule, then a subscript is used to indicate the number of atoms.

e.g., N₂ = 2 atoms of nitrogen

3. A **subscript outside** a bracket multiplies all the elements inside the brackets.

e.g., Ba₃(PO₄)₂ = 3 atoms of barium, 2 atoms of phosphorous, 8 atoms of oxygen

4. a) A **coefficient** is a number written **in front of** a chemical **symbol** and indicates the number of atoms of that element.

e.g., 3C = 3 atoms of carbon

or

b) A **coefficient** is a number written **in front of a chemical formula** and indicates the number of molecules of that compound.

Note: A **coefficient** multiplies the number of atoms of each element in the formula.

e.g., 2H₂O = 4 atoms of hydrogen, 2 atoms of oxygen

3FeSO₄ = 3 atoms of iron, 3 atoms of sulfur, 12 atoms of oxygen

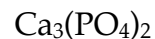
4Cu(NO₃)₂ = 4 atoms of carbon, 8 atoms of nitrogen, 24 atoms of oxygen

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Complete the table for each of the following compounds:



Type of Atom	# of atoms
sodium	2
carbon	1
oxygen	3
Total	6



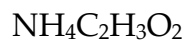
Type of Atom	# of atoms
calcium	3
phosphorous	2
oxygen	8
Total	13



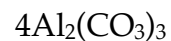
Type of Atom	# of atoms
potassium	2
chromium	1
oxygen	4
Total	7



Type of Atom	# of atoms
barium	3
chlorine	6
Total	9



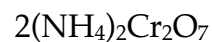
Type of Atom	# of atoms
nitrogen	1
hydrogen	7
carbon	2
oxygen	2
Total	12



Type of Atom	# of atoms
aluminum	8
carbon	12
oxygen	36
Total	56



Type of Atom	# of atoms
lead	1
nitrogen	2
oxygen	6
Total	9



Type of Atom	# of atoms
nitrogen	4
hydrogen	16
chromium	4
oxygen	14
Total	38