

Warm-Up

Quiz tomorrow

1. silver sulfide $Ag^+ S^{2-}$ Ag_2S
2. potassium sulfate $K^+ SO_4^{2-}$ K_2SO_4 $K_2(SO_4)$
3. copper (II) nitrate $Cu^{2+} NO_3^-$ $Cu(NO_3)_2$
4. $SrCO_3$ strontium carbonate
5. $FeCl_3$ iron(III) chloride
6. $Ni(SO_4)^{2-}$ nickel(II) sulfate
7. Ga_2O_3 gallium oxide

COUNTING ATOMS!!!

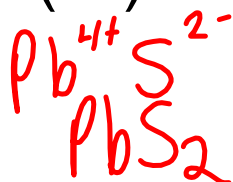
1) The symbol of an element represents one atom of that element

Example: Ca = 1 atom

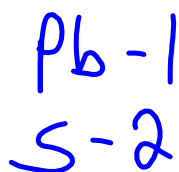
2) A subscript is a number written at the lower right corner after the symbol of an element. If there is more than one atom of the element in the molecule, then a subscript is used to indicate the number of atoms.

Example: N₂ = 2 atoms

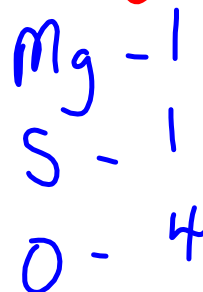
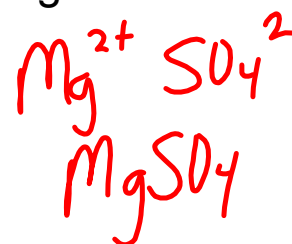
A. lead (IV) sulfide



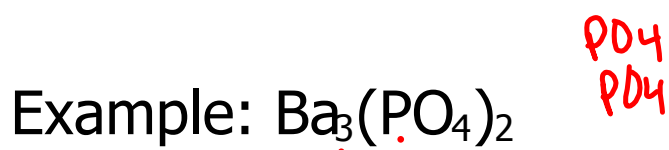
List the atoms:



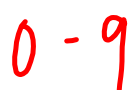
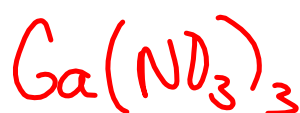
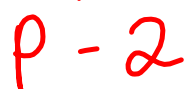
B. magnesium sulfate



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

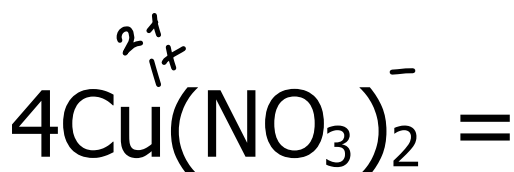


List the atoms:



4. 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.



Name:

copper(II) nitrate

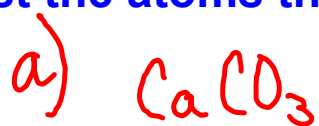
coefficient
List the atoms:

$$\text{Cu} - 1 \times 4 \rightarrow 4$$

$$\text{N} - 2 \times 4 \rightarrow 8$$

$$\text{O} - 6 \times 4 \rightarrow 24$$

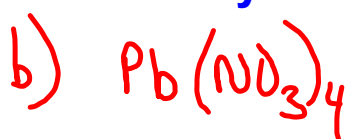
List the atoms then tell how many of each atom is present



$$\text{Ca} - 1$$

$$\text{C} - 1$$

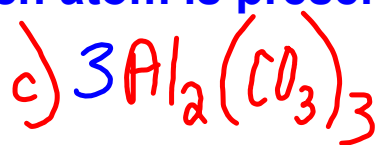
$$\text{O} - 3$$



$$\text{Pb} - 1$$

$$\text{N} - 4$$

$$\text{O} - 12$$



$$\text{Al} - 2 \times 3 = 6$$

$$\text{C} - 3 \times 3 = 9$$

$$\text{O} - 9 \times 3 = 27$$



$$\text{C} - 1 + 1 = 2 \times 2 = 4$$

$$\text{H} - 3 + 1 = 4 \times 2 = 8$$

$$\text{O} - 1 + 1 = 2 \times 2 = 4$$

Counting Atoms 2

Using the information you have learned about atoms and formulas follow the example for Calcium Carbonate to complete the chart below.

Name	Use	Formula	Number of Atoms
Calcium Carbonate	Limestone	CaCO ₃	Ca = calcium 1 C = carbon 1 O = oxygen 3
Aspirin	Pain reliever	C ₉ H ₈ O ₄	C = 9 H = 8 O = 4
Magnesium Hydroxide	Found in milk of magnesia	2 Mg(OH) ₂	Mg = 2 O = 4 H = 4
Paradichlorobenzene	Moth Balls	C ₆ H ₄ Cl ₂	C = 6 H = 4 Cl = 2
Acetic acid	Found in vinegar	C ₂ H ₄ O ₂	C = 2 H = 4 O = 2
Pyrite	Fool's gold	FeS ₂	Fe = 1 S = 2
Sucrose	Sugar	6 C ₁₂ H ₂₂ O ₁₁	C = 72 H = 132 O = 66
Sulfuric Acid	Used in car batteries	H ₂ SO ₄	H = 2 S = 1 O = 4
Cellulose	Found in plant cells	C ₆ H ₇ O ₂ (OH) ₃	C = 6 H = 10 O = 5
Asbestos	Insulating fiber	H ₄ Mg ₃ Si ₂ O ₉	H = 4 Mg = 3 Si = 2 O = 9
Silicon Dioxide	Sand	4 SiO ₂	Si = 4 O = 8
Iron Oxide	Rust	Fe ₂ O ₃	Fe = 2 O = 3
Butane	Fuel	3 C ₄ H ₁₀	C = 12 H = 30

Counting Atoms

Calculate how many atoms of each element are present in the following compounds.

- | | |
|--|--|
| 1.) NaOH | 9.) 2 Al ₂ O ₃ |
| 2.) MgBr ₂ | 10.) 5 ZnSO ₄ |
| 3.) Li ₂ SO ₄ | 11.) Ca(OH) ₂ |
| 4.) NaC ₂ H ₃ O ₂ | 12.) (NH ₄) ₂ SO ₄ |
| 5.) NH ₄ NO ₃ | 13.) 4 Na ₂ CO ₃ |
| 6.) 3 HNO ₃ | 14.) 2 Mg(NO ₂) ₂ |
| 7.) 4 Na ₂ O | 15.) 3 Mg(CN) ₂ |
| 8.) 3 H ₂ O | 16.) NaHCO ₃ |

1. Na = 1
O = 1
H = 1

7. Na = 8
O = 4

13. Na = 8
C = 4
O = 12

2. Mg = 1
Br = 2

8. H = 6
O = 3

14. Mg = 2
N = 4
O = 8

3. Li = 2
S = 1
O = 4

9. Al = 4
O = 6

15. Mg = 3
C = 6
N = 6

4. Na = 1
C = 2
H = 3
O = 2

10. Zn = 5
S = 5
O = 20

16. Na = 1
H = 1
C = 1
O = 3

5. N = 2
H = 4
O = 3

11. Ca = 1
O = 2
H = 2

6. H = 3
N = 3
O = 9

12. N = 2
H = 8
S = 1
O = 4