

FINDING THE FORMULA

Answer all the questions below and then check your answers.

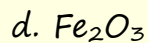
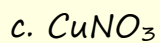
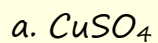
1. What does the word valency mean?
2. Complete the table below to show the valencies of the elements in the periodic table:

| Group element is found in periodic table | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|------------------------------------------|---|---|---|---|---|---|---|---|
| Valency | | | | | | | | |

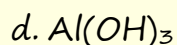
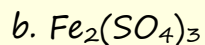
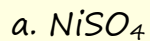
3. If a compound ends in the letters *-ide* how many elements does it contain?
 - a. If a compound ends in the letters *-ate* how many elements does it contain?
4. The table below contains common group ions. Complete the table by naming the ion and filling in the valency column.

| Group ion | Name of group ion | valency |
|-------------|-------------------|---------|
| SO_4^{2-} | | |
| NO_3^- | | |
| NH_4^+ | | |
| CO_3^{2-} | | |
| PO_4^{3-} | | |
| OH^- | | |

5. Name all the elements found in the following compounds:



6. Name the following compounds:



7. Use the swap over rule to work out the formula for the following compounds:

a. potassium oxide

b. calcium bromide

c. aluminium oxide

d. iron (III) oxide

e. iron (II) bromide

f. silver (I) iodide

g. copper (II) nitrate

h. ammonium chloride

i. copper(II) sulfide

j. sulfuric acid

k. calcium hydroxide

Answers

1. What does the word valency mean?

How many bonds an element makes, it is the combining ability of an element and it is related to the number of electrons needed/lost to achieve an octet of electrons in the outer shell.

2. Complete the table below to show the valencies of the elements in the periodic table:

| | | | | | | | | |
|------------------------------------------|---|---|---|---|---|---|---|---|
| Group element is found in periodic table | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Valency | 1 | 2 | 3 | 4 | 3 | 2 | 1 | 0 |

3. If a compound ends in the letters -ide how many elements does it contain?

Two.

a. If a compound ends in the letters -ate how many elements does it contain?

Normally 3 elements one of which is oxygen.

4. The table below contains common group ions. Complete the table by naming the ion and filling in the valency column.

| Group ion | Name of group ion | valency |
|-------------|-------------------|---------|
| SO_4^{2-} | sulfate | 2 |
| NO_3^- | nitrate | 1 |
| NH_4^+ | ammonium | 1 |
| CO_3^{2-} | carbonate | 2 |
| PO_4^{3-} | phosphate | 3 |
| OH^- | hydroxide | 1 |

5. Name all the elements found in the following compounds:

a. CuSO_4 b. MnO_2 c. CuNO_3 d. Fe_2O_3

a. copper sulfate b. manganese dioxide c. copper nitrate d. iron oxide

6. Name the following compounds:

a. NiSO_4 nickel sulfate

b. $\text{Fe}_2(\text{SO}_4)_3$ iron sulfate

c. KNO_3 potassium nitrate

d. $\text{Al}(\text{OH})_3$ aluminium hydroxide

7. Use the swap over rule to work out the formula for the following compounds:

a. potassium oxide K_2O

b. calcium bromide CaBr_2

c. aluminium oxide Al_2O_3

d. iron (III) oxide Fe_2O_3

e. iron (II) bromide FeBr_2

f. silver (I) iodide AgI

g. copper (II) nitrate $\text{Cu}(\text{NO}_3)_2$

h. ammonium chloride NH_4Cl

i. copper (II) sulfide CuS

j. sulfuric acid H_2SO_4

k. calcium hydroxide $\text{Ca}(\text{OH})_2$