

Chemistry

Elements and Compounds 1

Name _____

What elements are present in each compound?

| | | |
|-------------------------------------|----------------------------------------------------------------------------|----------------------------------------|
| potassium iodide KI | sodium carbonate Na_2CO_3 <i>sodium, carbon, oxygen</i> | aluminum oxide Al_2O_3 |
| calcium bromide CaBr_2 | acetic acid $\text{HC}_2\text{H}_3\text{O}_2$ | magnesium bromide MgBr_2 |
| carbon tetrachloride CCl_4 | nitric acid HNO_3 | barium sulfate BaSO_4 |

Write the formula for each compound (the composition is given after each name):

| | | |
|---------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------|
| zinc oxide 1 atom Zn, 1 atom O | potassium chlorate 1 atom K, 1 atom Cl, 3 atoms O | aluminum bromide 1 atom Al, 3 atoms Br <i>AlBr_3</i> |
| calcium fluoride 1 atom Ca, 2 atoms F | sodium hydroxide 1 atom Na, 1 atom O, 1 atom H | ethyl alcohol 2 atoms C, 6 atoms H, 1 atom O |
| benzene 6 atoms C, 6 atoms H | lead(II) chromate 1 atom Pb, 1 atom Cr, 4 atoms O | Acetone 1 atom C, 2 atoms H, 1 atom O |

Write the names and numbers of atoms of each **element** in each of the following compounds:

| | | |
|-----------------------------------------------|------------------------------------|------------------------------------------------|
| Fe_2O_3 | $\text{Ca}(\text{NO}_3)_2$ | $\text{Cu}_3(\text{PO}_4)_2$ |
| K_2CO_3 | CH_3COCH_3 | $\text{HC}_2\text{H}_3\text{O}_2$ |
| $\text{C}_2\text{H}_5\text{OH}$ | $\text{Na}_2\text{Cr}_2\text{O}_7$ | $(\text{NH}_4)_3\text{PO}_4$ |
| $\text{Co}(\text{C}_2\text{H}_3\text{O}_2)_2$ | NiCO_3 | KMnO_4 |
| $\text{Mg}(\text{HSO}_3)_2$ | ZnCl_2 | $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$ |

How many total atoms are represented in each formula?

| | | | |
|-------------------------------------|-------------------------------------------|---------------------------------------------|-----------------------------------|
| $\text{Co}(\text{ClO}_3)_2$ | $(\text{NH}_4)_2\text{SO}_3$ | $\text{KAl}(\text{SO}_4)_2$ | $\text{CH}_3\text{CH}_2\text{OH}$ |
| $\text{CH}_3\text{CH}_2\text{COOH}$ | $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ | $\text{NH}_4\text{C}_2\text{H}_3\text{O}_2$ | $\text{C}_6\text{H}_4\text{Cl}_2$ |

Write formulas for the following compounds that a colleague read to you:

| | | |
|---------------------------|-----------------------------------------|------------------|
| K3-P-O4 | H2-S-O4 | K2-O |
| CA (pause) CN taken twice | Fe2-S3 CR (pause) NO3 taken three times | C2-H5 (pause) OH |

The formula for vitamin B₁₂ is C₆₃H₈₈CoN₁₄O₁₄P.

(a) How many atoms make up one molecule of vitamin? _____

(b) What percentage of the total atoms are carbon?

(c) What fraction of the total atoms are metallic?