

C3 - Chemical Accounting

Relative Formula of Mass (RFM or M_r)

Use the atomic masses provided in the table.

Calculate the relative formula of mass of iron oxide, Fe_3O_4 .

Calculate the relative formula of mass of carbon Dioxide, CO_2 .

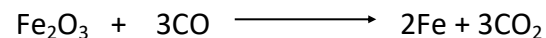
Calculate the relative formula of mass of copper Sulphate, $CuSO_4$.

Calculate the relative formula of mass of aluminium sulphate, $Al_2(SO_4)_3$.

Calculate the relative formula of mass of nitric acid, HNO_3

Mass of a Reactant or Product

The iron ore, haematite, consists mainly of iron oxide. In a blast furnace it is reduced to iron with carbon monoxide.



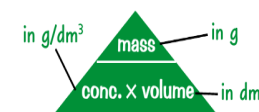
How many grams of carbon monoxide are needed to reduce 32g of iron oxide to iron?

Empirical Formula

In an experiment, heating 128g of copper combined with exactly 32g of sulphur. Work out the formula of copper sulphide formed.

Concentration

55g of potassium chloride is dissolved in 0.5 dm^3 of water. Calculate the concentration of the solution.



Percentage Composition by Mass

Calculate the percentage of carbon in Octane, C_8H_{18} .

Calculate the percentage of oxygen in ammonium nitrate, NH_4NO_3 .

Atomic Masses

O	16	H	1
Fe	56	N	14
C	12	Ca	40
Cu	64	Mg	24
S	32	Cl	35.5
Al	27	Ca	40
P	31	Si	28

C3 - Chemical Accounting—ANSWERS

Relative Formula of Mass (RFM or M_r)

Use the atomic masses provided in the table.

Calculate the relative formula of mass of iron oxide, Fe_3O_4 .

232

Calculate the relative formula of mass of carbon Dioxide, CO_2 .

44

Calculate the relative formula of mass of copper Sulphate, CuSO_4 .

160

Calculate the relative formula of mass of aluminium sulphate, $\text{Al}_2(\text{SO}_4)_3$.

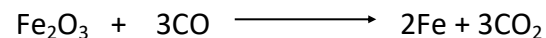
342

Calculate the relative formula of mass of nitric acid, HNO_3

63

Mass of a Reactant or Product

The iron ore, haematite, consists mainly of iron oxide. In a blast furnace it is reduced to iron with carbon monoxide.



How many grams of carbon monoxide are needed to reduce 32g of iron oxide to iron?

16.8g

Empirical Formula

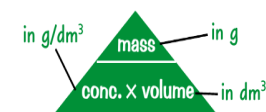
In an experiment, heating 128g of copper combined with exactly 32g of sulphur. Work out the formula of copper sulphide formed.

Cu_2S

Concentration

55g of potassium chloride is dissolved in 0.5 dm^3 of water. Calculate the concentration of the solution.

$110\text{g}/\text{dm}^3$



Percentage Composition by Mass

Calculate the percentage of carbon in Octane, C_8H_{18} .

84.2%

Calculate the percentage of oxygen in ammonium nitrate, NH_4NO_3 .

60%

Atomic Masses

O	16	H	1
Fe	56	N	14
C	12	Ca	40
Cu	64	Mg	24
S	32	Cl	35.5
Al	27	Ca	40
P	31	Si	28