Q. Positive ions and negative ions are given below. Write formulae from ions

	K^{1+}	Al^{3+}	Mg^{2+}	NH_4^{1+}
O^{2-}	K_2O	Al_2O_3	MgO	$(NH_4)_2O$
F^{1-}	KF	AlF_3	MgF_2	NH_4F
CO_3^{2-}	K_2CO_3	$Al_2(CO_3)_3$	$MgCO_3$	$(NH_4)_2CO_3$
PO_4^{3-}	K_3PO_4	$AlPO_4$	$Mg_3(PO_4)_2$	$(NH_4)_3PO_4$

Relative Atomic Mass (A_r)

→ Has no units

- Relative atomic mass of an element is the mass of one atom of an element compared to $\frac{1}{12}$ the mass of carbon 12-isotope

Relative atomic masses of some elements

Element	Symbol	A_r
Hydrogen	H	1
Carbon	C	12
Nitrogen	N	14
Oxygen	O	16
Sodium	Na	23
Magnesium	Mg	24

Element	Symbol	A_r
Aluminium	Al	27
Sulphur	S	32
Chlorine	Cl	35.5
Calcium	Ca	40
Iron	Fe	56
Copper	Cu	64

Relative molecular mass (M_r)

⇒ Has no units

- Relative molecular mass of a compound is the mass of one molecule of the compound or element compared with $\frac{1}{12}$ the mass of Carbon 12 – isotope

Q. Find the relative molecular mass of

1. $HCl = 1 \times 1 + 1 \times 35.5 = 1 + 35.5 = 36.5$ (M_r)

2. $Na_2CO_3 = 2 \times 23 + 12 \times 1 + 16 \times 3 = 46 + 12 + 48 = 106$ (M_r)

3. $AlCO_3 = Al_2O_3 = 2 \times 27 + 16 + 3 = 102$ (M_r)

Molar Mass (MM)

→ Units: gram per mole (g/mol)

Calculate the molar mass of the following

1. $HCl = 36.5$ g/mol
2. $NaIO_3 = 106$ g/mol
3. $AlPO_4 = 122$ g/mol

* Molar mass and Relative molecular mass have the same value but MM has no units while MM has units (g/mol)