

SCIENCE (Chemistry)

Chemical Calculations Using Mole (V)

Revision For Calculating Relative Atomic Mass and Relative Molecular Mass

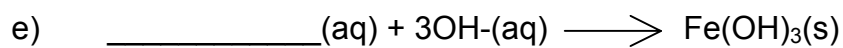
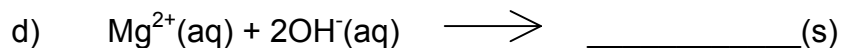
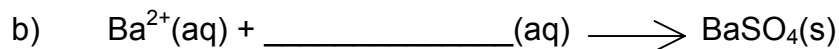
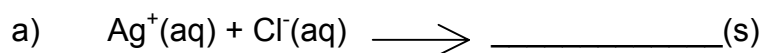
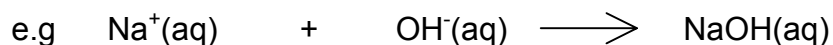
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Exercise

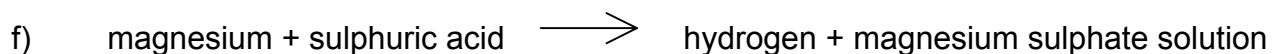
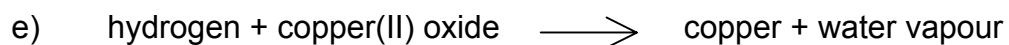
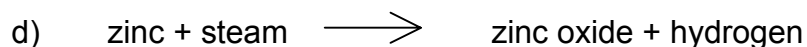
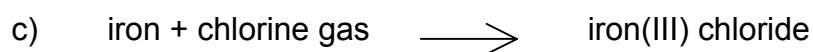
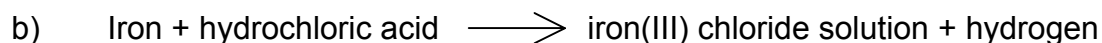
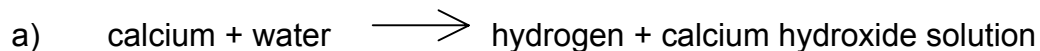
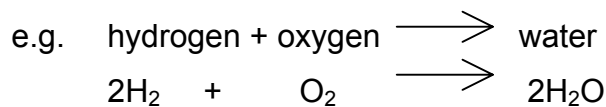
1. Complete the following table by filling in the chemical symbols for the ionic compounds formed

Negative Ion \ Positive Ion	Cl ⁻	O ²⁻	NO ₃ ⁻	OH ⁻	CO ₃ ²⁻	SO ₄ ²⁻
Na ⁺	NaCl	Na ₂ O	NaNO ₃	NaOH	Na ₂ CO ₃	Na ₂ SO ₄
(a) H ⁺						
(b) K ⁺						
(c) Ca ²⁺						
(d) Mg ²⁺						
(e) Cu ²⁺						
(f) Al ³⁺						
(g) Fe ³⁺						

2. Complete each of the following ionic equations.



3. Write balanced chemical equations for each of the following reactions.



4. Write balanced chemical equations for each of the following reactions.

a) Methane gas burns in oxygen to form carbon dioxide and water.

b) Carbon burns in air to form carbon dioxide.

c) Sodium reacts with oxygen gas in the air to form sodium oxide.

d) Magnesium burns in oxygen gas to produce magnesium oxide.

e) When copper(II) carbonate is heated, it breaks down into copper(II) oxide and carbon dioxide which is given off.

5. Write down the relative atomic mass of each of the following elements.

Element	Relative atomic mass, A_r	Element	Relative atomic mass, A_r
a) Lithium, Li		i) Oxygen, O	
b) Sodium, Na		j) Sulphur, S	
c) Magnesium, Mg		k) Fluorine, F	
d) Calcium, Ca		l) Chlorine, Cl	
e) Aluminium, Al		m) Neon, Ne	
f) Silicon, Si		n) Iron, Fe	
g) Phosphorus, P		o) Copper, Cu	
h) Nitrogen, N		p) Zinc, Zn	

6. Work out the relative molecular mass of each of the following compounds.

e.g.1 A_r of S = 32, A_r of O = 16

e.g.2

A_r of Ca = 40, A_r of O = 16, A_r of H = 1

M_r of $\text{SO}_2 = 32 + (2 \times 16) = 64$

M_r of $\text{Ca}(\text{OH})_2 = 40 + 2 \times (16 + 1) = 74$

compound	Relative molecular mass, M_r	compound	Relative molecular mass, M_r
a) H_2O		k) NH_4Cl	
b) CO_2		l) H_2CO_3	
c) NaCl		m) $\text{Zn}(\text{OH})_2$	
d) HCl		n) $\text{Al}(\text{OH})_3$	
e) NaOH		o) $\text{Ca}(\text{NO}_3)_2$	
f) FeSO_4		p) $\text{Pb}(\text{NO}_3)_2$	
g) CuCO_3		q) $\text{Fe}_2(\text{SO}_4)_3$	
h) Al_2O_3		r) Na_2CO_3	
i) Fe_2O_3		s) CuO	