

Science 10 Review Worksheet

Identify the following as ionic (i) or molecular (m):

Compound	LiBr	Na ₂ O	CF ₄	Fe ₂ O ₃	SO ₂	N ₂ O ₄	SiO ₂	PBr ₃	PbO ₂	Cu ₃ P ₂
i or m	i	i	m	i	m	m	m	m	i	i

Place the symbol for each ion in the space provided. Then write the correct chemical formula and name for the ionic compound. Be sure to balance the charges.

*Remember polyatomic ions end in -ite, and -ate,
except for cyanide, hydroxide and ammonium.*

The first one is completed for you.

	Cation		Anion		Formula
a)	aluminum	Al^{3+}	chloride	Cl^{-}	$AlCl_3$
b)	calcium	Ca^{2+}	sulfite	SO_3^{2-}	$CaSO_3$
c)	sodium	Na^{+}	phosphate	PO_4^{3-}	Na_3PO_4
d)	copper(II)	Cu^{2+}	nitrate	NO_3^{-}	$Cu(NO_3)_2$
e)	chromium(II)	Cr^{2+}	nitride	N^{3-}	Cr_3N_2
f)	silver	Ag^{+}	chromate	CrO_4^{2-}	Ag_2CrO_4
g)	nickel(III)	Ni^{3+}	iodide	I^{-}	NiI_3
h)	barium	Ba^{2+}	nitride	N^{3-}	Ba_3N_2
i)	sodium	Na^{+}	carbonate	CO_3^{2-}	Na_2CO_3
j)	zinc	Zn^{2+}	acetate	CH_3COO^{-}	$Zn(CH_3COO)_2$

Identify the type of ions found in each compound below.

Key: S – only simple ions

P – polyatomic ion(s) present

M – multi-valent metal ions

Compound	CoCl ₃	Na ₂ O	MnCl ₄	NH ₄ NO ₃	SrCO ₃	PbO	K ₂ SO ₄	CoCO ₃
S, M, and/or P	M	S	M	P	P	M	P	PM

Complete the table below:

Formula	Name	Formula	Name
a) P_4O_6	tetraphosphorus hexoxide	c) N_2O_4	dinitrogen tetroxide
b) S_2F_{10}	disulfur decafluoride	d) ICl_5	iodine pentachloride

Provide the name or formula for each hydrate below:

1. copper (II) sulfate pentahydrate	$CuSO_4 \cdot 5 H_2O$
2. magnesium sulfate heptahydrate	$MgSO_4 \cdot 7 H_2O$
3. potassium carbonate octahydrate	$K_2CO_3 \cdot 8 H_2O$
4. magnesium chloride hexahydrate	$MgCl_2 \cdot 6 H_2O$
5. barium chloride dihydrate	$BaCl_2 \cdot 2 H_2O$

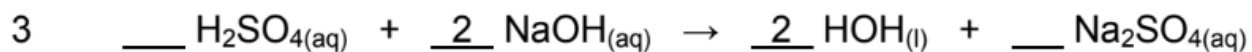
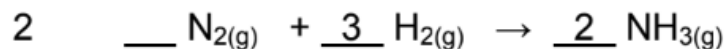
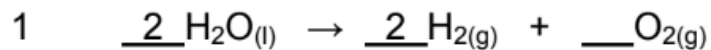
Complete the table below:

Formula	Acid Name
a) $H_3BO_3(aq)$	boric acid
b) $HCl_{(aq)}$	hydrochloric acid
c) $CH_3COOH_{(aq)}$	acetic acid
d) $H_2SO_4(aq)$	sulfuric acid
e) $H_2SO_3(aq)$	sulfurous acid
f) $H_2C_2O_{4(aq)}$	oxalic acid
g) $H_3PO_{4(aq)}$	phosphoric acid

Identify the **type** of compound and use the appropriate rules to complete the table below:

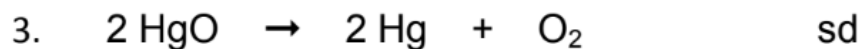
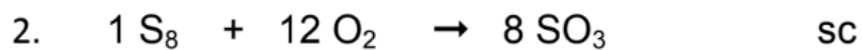
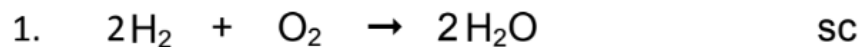
i, m or a	Formula	Name	i, m or a	Name	Formula
m	OF_2	oxygen difluoride	m	tetracarbon octahydride	C_4H_8
a	$HNO_{3(aq)}$	nitric acid	i	molybdenum(III) oxide	Mo_2O_3
i	Zn_3P_2	zinc phosphide	i	lead(IV) nitrate dihydrate	$Pb(NO_3)_4 \cdot 2 H_2O$
i	$FeCl_2$	iron(II) chloride	i	magnesium perchlorate	$Mg(ClO_4)_2$
i	$CaCO_3$	calcium carbonate	i	beryllium oxide	BeO

Balance the following chemical equations and identify the reaction type



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Reaction Type



Complete the following questions in the spaces provided.

1. Lithium metal is reacted with nitrogen to produce lithium nitride

Word equation: lithium + nitrogen → lithium nitride

Chemical equation: $6\text{Li} + \text{N}_2 \rightarrow 2\text{Li}_3\text{N}$

2. Copper (I) oxide is decomposed into its elements

Word equation: Copper (I) oxide → copper + oxygen

Chemical equation: $2\text{Cu}_2\text{O} \rightarrow 4\text{Cu} + \text{O}_2$

3. Silver crystals form when copper is placed in a solution of silver nitrate.

Word equation: silver nitrate + copper → silver + copper (II) nitrate

Chemical equation: $2\text{AgNO}_3 + \text{Cu} \rightarrow 2\text{Ag} + \text{Cu}(\text{NO}_3)_2$

4. A sodium hydroxide solution is neutralized by nitric acid.

Word equation: sodium hydroxide + nitric acid → sodium nitrate + water

Chemical equation: $\text{NaOH} + \text{HNO}_3 \rightarrow \text{NaNO}_3 + \text{H}_2\text{O}$

5. The combustion of methanol (CH_3OH) is used to keep food trays warm

Word equation: methanol + oxygen → carbon dioxide + water

Chemical equation: $2\text{CH}_3\text{OH} + 3\text{O}_2 \rightarrow 2\text{CO}_2 + 4\text{H}_2\text{O}$