

WORKSHEET 1 - BALANCE THE FOLLOWING CHEMICAL EQUATIONS - ANSWERS

✓ = The chemical equation is already balanced.

1.	4Na	+	O ₂	→	2Na ₂ O		
2.	2Na	+	Cl ₂	→	2NaCl		
3.	2Na	+	2H ₂ O	→	2NaOH	+	H ₂
4.	2Na	+	H ₂	→	2NaH		
5.	6Na	+	N ₂	→	2Na ₃ N		
6.	Mg	+	O ₂	→	2MgO		
7.	Mg	+	Cl ₂	→	MgCl ₂		✓
8.	2Mg	+	CO ₂	→	2MgO	+	C
9.	2Ag	+	O ₂	→	2AgO		
10.	2Al	+	3Br ₂	→	2AlBr ₃		
11.	4Al	+	3O ₂	→	2Al ₂ O ₃		
12.	2Al	+	N ₂	→	2AlN		
13.	2Li	+	2HCl	→	2LiCl	+	H ₂
14.	Mg	+	2HCl	→	MgCl ₂	+	H ₂
15.	2Li	+	H ₂ SO ₄	→	Li ₂ SO ₄	+	H ₂
16.	Sr	+	H ₂ SO ₄	→	SrSO ₄	+	H ₂
17.	NH ₃	+	HCl	→	NH ₄ Cl		✓
18.	CuO	+	2HCl	→	CuCl ₂	+	H ₂ O
19.	2Al	+	6HCl	→	2AlCl ₃	+	3H ₂
20.	Fe	+	CuSO ₄	→	Cu	+	FeSO ₄
21.	2Al	+	Fe ₂ O ₃	→	2Fe	+	Al ₂ O ₃
22.	2KI	+	Pb(NO ₃) ₂	→	PbI ₂	+	2KNO ₃
23.	Al	+	3AgNO ₃	→	3Ag	+	Al(NO ₃) ₃
24.	2Al	+	3H ₂ SO ₄	→	Al ₂ (SO ₄) ₃	+	3H ₂
25.	Ca(OH) ₂	+	CO ₂	→	CaCO ₃	+	H ₂ O

WORKSHEET 2 - BALANCE THE FOLLOWING CHEMICAL EQUATIONS - ANSWERS

✓ = The chemical equation is already balanced.

26.	2Na	+	S	→	Na ₂ S		
27.	2Na	+	I ₂	→	2NaI		
28.			2HgO	→	2Hg	+	O ₂
29.	2ZnO	+	C	→	2Zn	+	CO ₂
30.	2Na	+	F ₂	→	2NaF		
31.			CuCO ₃	→	CuO	+	CO ₂ ✓
32.	2Na	+	I ₂	→	2NaI		
33.	Ca	+	2H ₂ O	→	Ca(OH) ₂	+	2H ₂
34.	2Ba	+	O ₂	→	2BaO		
35.	2Ag	+	S	→	Ag ₂ S		
36.	CH ₄	+	2O ₂	→	CO ₂	+	2H ₂ O
37.	3Mg	+	N ₂	→	Mg ₃ N ₂		
38.	2Mg	+	CO ₂	→	2MgO	+	C
39.	Ba	+	2HCl	→	BaCl ₂	+	H ₂
40.	K ₂ O	+	H ₂ SO ₄	→	K ₂ SO ₄	+	H ₂ O ✓
41.	CuO	+	2HNO ₃	→	Cu(NO ₃) ₂	+	H ₂ O
42.	2NaI	+	Cl ₂	→	2NaCl	+	I ₂
43.	2Al	+	3F ₂	→	2AlF ₃		
44.	2NaOH	+	CO ₂	→	Na ₂ CO ₃	+	H ₂ O
45.	Al ₂ O ₃	+	6HCl	→	2AlCl ₃	+	3H ₂ O
46.	Cu	+	2AgNO ₃	→	Cu(NO ₃) ₂	+	2Ag
47.	2PbS	+	3O ₂	→	2PbO	+	2SO ₂
48.	Pb ₃ O ₄	+	2C	→	3Pb	+	2CO ₂
49.	2Fe	+	3Cl ₂	→	2FeCl ₃		
50.	Al ₂ O ₃	+	2NaOH + 3H ₂ O	→	2NaAl(OH) ₄		

WRITE IN THE CORRECT FORMULA THEN BALANCE THE CHEMICAL EQUATIONS - ANSWERS

Note: Many elements exist as diatomic molecules. ie. H₂, O₂, N₂, F₂, Cl₂, Br₂, I₂

1.	Hydrogen	+	Oxygen	→	Water	
	2H ₂	+	O ₂	→	2H ₂ O	
	METALLIC OXIDE	+	WATER	→	BASE	
2.	Sodium oxide	+	Water	→	Sodium hydroxide	
	Na ₂ O	+	H ₂ O	→	2NaOH	
3.	Calcium oxide	+	Water	→	Calcium hydroxide	
	CaO	+	H ₂ O	→	Ca(OH) ₂	
4.	Potassium oxide	+	Water	→	Potassium hydroxide	
	K ₂ O	+	H ₂ O	→	2KOH	
5.	Nitrogen	+	Hydrogen	→	Ammonia	
	N ₂	+	3H ₂	→	2NH ₃	
	NON METALLIC OXIDE	+	WATER	→	ACID	
6.	Carbon dioxide	+	Water	→	Carbonic acid	
	CO ₂	+	H ₂ O	→	H ₂ CO ₃	
7.	Sulfur dioxide	+	Water	→	Sulfurous acid	
	SO ₂	+	H ₂ O	→	H ₂ SO ₃	
8.	Sulfur trioxide	+	Water	→	Sulfuric acid	
	SO ₃	+	H ₂ O	→	H ₂ SO ₄	
9.	Nitrogen dioxide	+	Water	→	Nitric acid	+ Nitrous acid
	2NO ₂	+	H ₂ O	→	HNO ₃	+ HNO ₂
10.	Phosphorus pentoxide	+	Water	→	Phosphoric acid	
	P ₄ O ₁₀	+	6H ₂ O	→	4H ₃ PO ₄	
11.	Hydrogen	+	Chlorine	→	Hydrogen chloride	
	H ₂	+	Cl ₂	→	2HCl	
12.	Sulfuric acid	+	Sodium chloride	→	Hydrochloric acid	+ Sodium sulfate
	H ₂ SO ₄	+	2NaCl	→	2HCl	+ Na ₂ SO ₄

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13.	Iron	+	Oxygen	→	Iron(III) oxide		
	4Fe	+	3O ₂	→	2Fe ₂ O ₃		
14.	Aluminium	+	Fluorine	→	Aluminium fluoride		
	2Al	+	3F ₂	→	2AlF ₃		
15.	Lead (IV) oxide	+	Carbon	→	Lead	+	Carbon dioxide
	PbO ₂	+	C	→	Pb	+	CO ₂
16.	Magnesium hydroxide	+	Hydrochloric acid	→	Magnesium chloride	+	Water
	Mg(OH) ₂	+	2HCl	→	MgCl ₂	+	2H ₂ O
17.	Potassium	+	Water	→	Potassium hydroxide	+	Hydrogen
	2K	+	H ₂ O	→	2KOH	+	H ₂
18.	Iron	+	Sulfuric acid	→	Iron(II) sulfate	+	Hydrogen
	Fe	+	H ₂ SO ₄	→	FeSO ₄	+	H ₂
19.			Hydrogen peroxide	→	Oxygen	+	Water
			2H ₂ O ₂	→	O ₂	+	2H ₂ O
20.	Lithium hydroxide	+	Carbon dioxide	→	Lithium carbonate	+	Water
	2LiOH	+	CO ₂	→	Li ₂ CO ₃	+	H ₂ O
21.	Copper sulfate	+	Iron	→	Iron sulfate	+	Copper
	CuSO ₄	+	Fe	→	FeSO ₄	+	Cu
22.	Calcium bromide	+	Chlorine	→	Calcium chloride	+	Bromine
	CaBr ₂	+	Cl ₂	→	CaCl ₂	+	Br ₂
23.	Sulfuric acid	+	Barium hydroxide	→	Barium sulfate	+	Water
	H ₂ SO ₄	+	Ba(OH) ₂	→	BaSO ₄	+	2H ₂ O
24.	Copper(II) sulfide	+	Hydrogen	→	Copper	+	Hydrogen sulfide
	CuS	+	H ₂	→	Cu	+	H ₂ S
25.	Propane gas (L.P.G.)	+	Oxygen	→	Carbon dioxide	+	Water
	C ₃ H ₈	+	5O ₂	→	3CO ₂	+	4H ₂ O

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Note: Many elements exist as diatomic molecules. ie. H₂, O₂, N₂, F₂, Cl₂, Br₂, I₂

ADVANCED CHEMICAL EQUATIONS					
26.	Iron(III) oxide	+	Carbon monoxide	→	Iron + Carbon dioxide
	Fe ₂ O ₃	+	CO	→	2Fe + 3CO ₂
27.	Copper	+	Nitric acid	→	Nitrogen dioxide + Copper(II) nitrate + Water
	Cu	+	4HNO ₃	→	2NO ₂ + Cu(NO ₃) ₂ + 2H ₂ O
28.	Carbon dioxide	+	Water	→	Glucose + Oxygen
	6CO ₂	+	6H ₂ O	→	C ₆ H ₁₂ O ₆ + 6O ₂
29.			Glucose	→	Carbon dioxide + Ethanol
			C ₆ H ₁₂ O ₆	→	2CO ₂ + 2C ₂ H ₅ OH
30.	Calcium hypochlorite	+	Hydrochloric acid	→	Calcium chloride + Water + Chlorine
	Ca(ClO) ₂	+	4HCl	→	CaCl ₂ + 2H ₂ O + 2Cl ₂
31.	Phosphorus pentachloride	+	Water	→	Phosphoric acid + Hydrogen chloride
	PCl ₅	+	4H ₂ O	→	H ₃ PO ₄ + 5HCl
32.	Iron(II,III) oxide	+	Carbon monoxide	→	Iron + Carbon dioxide
	Fe ₃ O ₄	+	4CO	→	3Fe + 4CO ₂
33.	Ammonia	+	Oxygen	→	Nitrogen monoxide + Water
	4NH ₃	+	5O ₂	→	4NO + 6H ₂ O
34.	Copper	+	Nitric acid	→	Nitrogen monoxide + Copper(II) nitrate + Water
	3Cu	+	8HNO ₃	→	2NO + 3Cu(NO ₃) ₂ + 4H ₂ O
35.	Potassium permanganate	+	Hydrochloric acid	→	Manganese chloride + Potassium chloride + Chlorine + Water
	2KMnO ₄	+	16HCl	→	2MnCl ₂ + 2KCl + 5Cl ₂ + 8H ₂ O