

Practice Table #1: Finding Charges on Ions

Element	Group #	Ion	Element	Group #	Ion
Li	1	Li ⁺	F	17	F ⁻
Mg	2	Mg ²⁺	S	16	S ²⁻
Al	3	Al ³⁺	N	15	N ³⁻
Be	2	Be ²⁺	Br	17	Br ⁻
Na	1	Na ⁺	P	15	P ³⁻

Practice Table #2: Writing Formulas of Regular Ionic Compounds

Metal	Non-metal	Compound	Metal	Non-metal	Compound
Na	Br	NaBr sodium bromide	Al	Cl	AlCl ₃ aluminum chloride
Mg	Br	MgBr ₂ magnesium bromide	B	O	B ₂ O ₃ boron oxide
Al	Br	AlBr ₃ aluminum bromide	Ca	N	Ca ₃ N ₂ calcium nitride
Li	S	Li ₂ S lithium sulfide	K	O	K ₂ O potassium oxide
Ca	S	CaS calcium sulfide	Na	P	Na ₃ P sodium phosphide
B	S	B ₂ S ₃ boron sulfide	Al	O	Al ₂ O ₃ aluminum oxide
K	N	K ₃ N potassium nitride	Mg	S	MgS magnesium sulfide
Be	N	Be ₃ N ₂ beryllium nitride	B	P	BP boron phosphide
Al	N	AlN aluminum nitride	Na	Cl	NaCl sodium chloride
Li	O	Li ₂ O lithium oxide	Ca	F	CaF ₂ calcium fluoride

Practice Table #3: Chemical Names and Formulas of Regular Ionic Compounds

Chemical Name	Metal Ion	Non-metal Ion	Chemical Formula
sodium fluoride	Na ⁺	F ⁻	NaF
boron iodide	B ³⁺	I ⁻	BI ₃
calcium phosphide	Ca ²⁺	P ³⁻	Ca ₃ P ₂
magnesium oxide	Mg ²⁺	O ²⁻	MgO
potassium chloride	K ⁺	Cl ⁻	KCl
beryllium sulfide	Be ²⁺	S ²⁻	BeS
barium nitride	Ba ²⁺	N ³⁻	Ba ₃ N ₂
aluminum sulfide	Al ³⁺	S ²⁻	Al ₂ S ₃
lithium phosphide	Li ⁺	P ³⁻	Li ₃ P
potassium sulfide	K ⁺	S ²⁻	K ₂ S
boron oxide	B ³⁺	O ²⁻	B ₂ O ₃
calcium fluoride	Ca ²⁺	F ⁻	CaF ₂

Practice Table #4: Names and Formulas of Covalent Compounds

Chemical Name	Formula	Chemical Name	Formula
carbon tetrachloride	CCl ₄	silicon disulfide	SiS ₂
diarsenic trioxide	As ₂ O ₃	phosphorus trioxide	PO ₃
phosphorus pentabromide	PBr ₅	phosphorus trifluoride	PF ₃
nitrogen dioxide	NO ₂	carbon tetrabromide	CBr ₄
sulfur hexafluoride	SF ₆	nitrogen trichloride	NCl ₃
selenium dioxide	SeO ₂	silicon trioxide	SiO ₃
dinitrogen tetroxide	N ₂ O ₄	phosphorus trichloride	PCl ₃
sulfur dioxide	SO ₂	carbon disulfide	CS ₂
nitrogen monoxide	NO	sulfur dichloride	SCl ₂
silicon dioxide	SiO ₂	sulfur dioxide	SO ₂
sulfur trioxide	SO ₃	nitrogen monoxide	NO

Practice Table #5: Writing Formulas with Polyatomic Ions

Compound Name	Positive Ion	Negative Ion	Formula
sodium carbonate	Na^+	CO_3^{2-}	Na_2CO_3
calcium nitrate	Ca^{2+}	NO_3^-	$\text{Ca}(\text{NO}_3)_2$
barium sulfate	Ba^{2+}	SO_4^{2-}	Ba SO_4
aluminum hydrogen carbonate	Al^{3+}	HCO_3^-	$\text{Al}(\text{HCO}_3)_3$
potassium phosphate	K^+	PO_4^{3-}	K_3PO_4
beryllium hydroxide	Be^{2+}	OH^-	$\text{Be}(\text{OH})_2$
lithium hydrogen sulfate	Li^+	HSO_4^-	LiHSO_4
ammonium chloride	NH_4^+	Cl^-	NH_4Cl
sodium phosphate	Na^+	PO_4^{3-}	Na_3PO_4
potassium sulfate	K^+	SO_4^{2-}	K_2SO_4
ammonium carbonate	NH_4^+	CO_3^{2-}	$(\text{NH}_4)_2\text{CO}_3$

Practice Table #6: Naming Compounds with Polyatomic Ions

FORMULA	NAME OF COMPOUND
$\text{Mg}(\text{OH})_2$	magnesium hydroxide
CaCO_3	calcium carbonate
NH_4Cl	ammonium chloride
LiHCO_3	lithium hydrogen carbonate
$\text{Al}(\text{NO}_3)_3$	aluminum nitrate
$\text{Be}_3(\text{PO}_4)_2$	beryllium phosphate
KHSO_4	potassium hydrogen sulfate
$(\text{NH}_4)_3\text{N}$	ammonium nitride

Practice Table #7: Writing Formulas with Transition Metals

Compound Name	Metal Ion	Non-metal Ion	Formula
gold (I) chloride	Au^+	Cl^-	AuCl
nickel (III) sulfide	Ni^{3+}	S^{2-}	Ni_2S_3
cobalt (II) oxide	Co^{2+}	O^{2-}	CoO
iron (III) phosphide	Fe^{3+}	P^{3-}	FeP
mercury (IV) fluoride	Hg^{4+}	F^-	HgF_4
nickel (II) nitride	Ni^{2+}	N^{3-}	Ni_3N_2
gold (III) sulfide	Au^{3+}	S^{2-}	Au_2S_3
copper (I) oxide	Cu^+	O^{2-}	Cu_2O

Review: Naming Chemical Compounds

Element #1 (or ion and charge)	Element #2 (or ion and charge)	Type of Compound	Formula	Name
Be^{2+}	F^-	Ionic	BeF_2	beryllium fluoride
Na^+	Cl^-	Ionic	NaCl	sodium chloride
Ni^{3+}	O^{2-}	Ionic	Ni_2O_3	nickel (III) oxide
Cl	O	Covalent	Cl_2O	dichlorine monoxide
Na^+	CO_3^{2-}	Ionic	Na_2CO_3	sodium carbonate
Na^+	PO_4^{3-}	Ionic	Na_3PO_4	sodium phosphate
Ca^{2+}	Cl^-	Ionic	CaCl_2	calcium chloride
NH_4^+	F^-	Ionic	NH_4F	ammonium fluoride
K^+	OH^-	Ionic	KOH	potassium hydroxide
Ca^{2+}	NO_3^-	Ionic	$\text{Ca}(\text{NO}_3)_2$	calcium nitrate
N	F	Covalent	NF_3	nitrogen trifluoride
Au^{3+}	I^-	Ionic	AuI_3	gold (III) iodide
Mg^{2+}	NO_3^-	Ionic	$\text{Mg}(\text{NO}_3)_2$	magnesium nitrate
K^+	HSO_4^-	Ionic	KHSO_4	potassium hydrogen sulfate
K^+	Cl^-	Ionic	KCl	potassium chloride
Cu^{2+}	OH^-	Ionic	$\text{Cu}(\text{OH})_2$	copper (II) hydroxide
S	O	Ionic	SO_2	sulfur dioxide
C	O	Covalent	CO	carbon monoxide
Ni^{2+}	NO_3^-	Ionic	$\text{Ni}(\text{NO}_3)_2$	nickel (II) nitrate
Pb^{4+}	SO_4^{2-}	Ionic	$\text{Pb}(\text{SO}_4)_2$	lead (IV) sulfate