



Part A. Use the criss-cross method to write the formulas produced from the listed ions.

	Cl^-	CO_3^{2-}	OH^-	SO_4^{2-}	PO_4^{3-}	NO_3^-
Na^+	NaCl	Na_2CO_3	NaOH	Na_2SO_4	Na_3PO_4	NaNO_3
NH_4^+	NH_4Cl	$(\text{NH}_4)_2\text{CO}_3$	NH_4OH	$(\text{NH}_4)_2\text{SO}_4$	$(\text{NH}_4)_3\text{PO}_4$	NH_4NO_3
K^+	KCl	K_2CO_3	KOH	K_2SO_4	K_3PO_4	KNO_3
Ca^{2+}	CaCl_2	CaCO_3	$\text{Ca}(\text{OH})_2$	CaSO_4	$\text{Ca}_3(\text{PO}_4)_2$	$\text{Ca}(\text{NO}_3)_2$
Zn^{2+}	ZnCl_2	ZnCO_3	$\text{Zn}(\text{OH})_2$	ZnSO_4	$\text{Zn}_3(\text{PO}_4)_2$	$\text{Zn}(\text{NO}_3)_2$
Fe^{3+}	FeCl_3	$\text{Fe}_2(\text{CO}_3)_3$	$\text{Fe}(\text{OH})_3$	$\text{Fe}_2(\text{SO}_4)_3$	FePO_4	$\text{Fe}(\text{NO}_3)_3$
Al^{3+}	AlCl_3	$\text{Al}_2(\text{CO}_3)_3$	$\text{Al}(\text{OH})_3$	$\text{Al}_2(\text{SO}_4)_3$	AlPO_4	$\text{Al}(\text{NO}_3)_3$
Co^{3+}	CoCl_3	$\text{Co}_2(\text{CO}_3)_3$	$\text{Co}(\text{OH})_3$	$\text{Co}_2(\text{SO}_4)_3$	CoPO_4	$\text{Co}(\text{NO}_3)_3$
Fe^{2+}	FeCl_2	FeCO_3	$\text{Fe}(\text{OH})_2$	FeSO_4	$\text{Fe}_3(\text{PO}_4)_2$	$\text{Fe}(\text{NO}_3)_2$
Mg^{2+}	MgCl_2	MgCO_3	$\text{Mg}(\text{OH})_2$	MgSO_4	$\text{Mg}_3(\text{PO}_4)_2$	$\text{Mg}(\text{NO}_3)_2$
H^+	HCl	H_2CO_3	H_2O	H_2SO_4	H_3PO_4	HNO_3

Part B. Write the names of the compounds formed in the above table.

	Cl^-	CO_3^{2-}	OH^-	SO_4^{2-}	PO_4^{3-}	NO_3^-
Na^+	Sodium chloride	Sodium carbonate	Sodium hydroxide	Sodium sulfate	Sodium phosphate	Sodium nitrate
NH_4^+	Ammonium chloride	Ammonium carbonate	Ammonium hydroxide	Ammonium sulfate	Ammonium phosphate	Ammonium nitrate
K^+	Potassium chloride	Potassium carbonate	Potassium hydroxide	Potassium sulfate	Potassium phosphate	Potassium nitrate
Ca^{2+}	Calcium chloride	Calcium carbonate	Calcium hydroxide	Calcium sulfate	Calcium phosphate	Calcium nitrate
Zn^{2+}	Zinc (II) chloride	Zinc (II) carbonate	Zinc (II) hydroxide	Zinc (II) sulfate	Zinc (II) phosphate	Zinc (II) nitrate
Fe^{3+}	Iron (III) chloride	Iron (III) carbonate	Iron (III) hydroxide	Iron (III) sulfate	Iron (III) phosphate	Iron (III) nitrate
Al^{3+}	Aluminum chloride	Aluminum carbonate	Aluminum hydroxide	Aluminum sulfate	Aluminum phosphate	Aluminum nitrate
Co^{3+}	Cobalt (III) chloride	Cobalt (III) carbonate	Cobalt (III) hydroxide	Cobalt (III) sulfate	Cobalt (III) phosphate	Cobalt (III) nitrate
Fe^{2+}	Iron (II) chloride	Iron (II) carbonate	Iron (II) hydroxide	Iron (II) sulfate	Iron (II) phosphate	Iron (II) nitrate
Mg^{2+}	Magnesium chloride	Magnesium carbonate	Magnesium hydroxide	Magnesium sulfate	Magnesium phosphate	Magnesium nitrate
H^+	Hydrogen chloride	Hydrogen carbonate	water	Hydrogen sulfate	Hydrogen phosphate	Hydrogen nitrate



I. Name the following Ionic Compounds:

1. LiBr lithium bromide
2. $\text{CuC}_2\text{H}_3\text{O}_2$ copper (I) acetate
3. PbSO_3 lead (II) sulfite
4. NaClO_3 sodium chlorate
5. CaC_2O_4 calcium oxalate
6. NaHSO_4 sodium bisulfate
7. Hg_2Cl_2 mercury (I) chloride
8. NaHCO_3 sodium bicarbonate
9. NiBr_3 nickel (III) bromide
10. AuCl_3 gold (III) chloride
11. KMnO_4 potassium permanganate

II. Name the following Covalent Compounds:

1. CO_2 carbon dioxide
2. CO carbon monoxide
3. SO_2 sulfur dioxide
4. SO_3 sulfur trioxide
5. N_2O dinitrogen monoxide
6. NO nitrogen monoxide
7. N_2O_3 dinitrogen trioxide
8. NO_2 nitrogen dioxide
9. N_2O_4 dinitrogen tetroxide
10. N_2O_5 dinitrogen pentoxide
11. PCl_3 phosphorous trichloride
12. PCl_5 phosphorous pentachloride
13. NH_3 nitrogen trihydride
14. SCl_6 sulfur hexachloride
15. P_2O_5 diphosphorous pentoxide
16. CCl_4 carbon tetrachloride
17. SiO_2 silicon dioxide
18. CS_2 carbon disulfide
19. OF_2 oxygen difluoride
20. PBr_3 phosphorous tribromide