

QUIZ REVIEW: (1) IONIC & METALLIC BONDING

(2) IONIC COMPOUNDS - WRITING FORMULAS AND NAMING COMPOUNDS

HAVING STUDIED THIS CHAPTER AND DONE THE PROBLEMS, YOU SHOULD BE ABLE TO:

1. Use the periodic table to find the number of valence electrons in an atom.

a. Sodium 1 b. Carbon 4 c. Phosphorus 5

2. Draw electron dot formulas of the following representative elements



3. State the octet rule.

In forming compounds, atoms tend to achieve the electron configuration of a noble gas.

4. State the importance of the noble-gas electron configuration in the formation of ions.

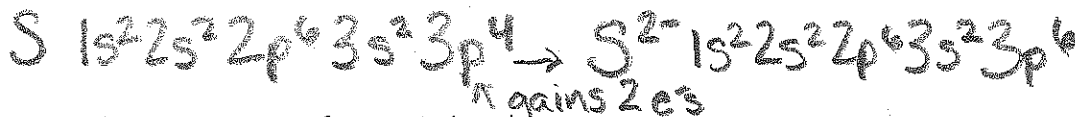
↳ The noble gases have a full outer shell and are more stable → atoms form ions to achieve this.

5. Describe the formation of the sodium ion using an electron dot structure.



↳ loses its valence e⁻ to achieve Neon's config.

6. Describe the formation of the sulfide ion using an electron dot structure.



↑ gains 2 e^s

→ achieves Argon's config.

7. Give the characteristics of an ionic bond.

↳ an ionic bond is the electrostatic force that holds anions + cations together. They are formed when a metal transfers electron(s) to a nonmetal.

8. Explain why the compound NaF is an ionic compound.

Na transfers its 1 valence electron to F which has 7 and needs 1 more to gain its octet

10. Identify characteristics (properties) of ionic compounds.

→ crystalline at room temp.

→ high melting points

→ can conduct electric current when molten or dissolved in H₂O

11. Explain how melted ionic compounds and aqueous solutions of ionic compounds electrical conductivity.

When the ionic compound melts the cations + anions are free to move throughout the liquid. The flow of ions allows the electricity to also flow

Ionic Compounds Formula Writing and Nomenclature Practice

	Name of Cation	Name of Anion	Formula of Cation	Formula of Anion	Formula of Compound	Name of Compound
1	Calcium ion	Chloride ion	Ca^{2+}	Cl^{-}	$CaCl_2$	calcium chloride
2	Iron(III) ion	Phosphide ion	Fe^{3+}	P^{3-}	FeP	iron(III) phosphide
3	Sodium ion	sulfide ion	Na^{+}	S^{2-}	Na_2S	sodium sulfide
4	aluminum ion	bromide ion	Al^{3+}	Br^{-}	$AlBr_3$	aluminum bromide
5	lithium ion	sulfide ion	Li^{+}	S^{2-}	Li_2S	Lithium Sulfide
6	Platinum(IV) ion	oxide ion	Pt^{4+}	O^{2-}	PtO_2	Platinum (IV) Oxide
7	Magnesium ion	Carbonate ion	Mg^{2+}	CO_3^{2-}	$MgCO_3$	magnesium carbonate
8	calcium ion	nitrate ion	Ca^{2+}	NO_3^{-}	$Ca(NO_3)_2$	calcium nitrate
9	Mercury (II) ion	sulfide ion	Hg^{2+}	S^{2-}	HgS	Mercury (II) sulfide
10	thorium ion	phosphate ion	Th^{4+}	PO_4^{3-}	$Th_3(PO_4)_4$	thorium phosphate

Write the names of these ionic compounds

1. CsBr cesium bromide
2. BaSO₄ barium sulfate
3. Hg₂S mercury(I) sulfide
4. Cr₂(CO₃)₃ chromium(III) carbonate
5. NiCl₃ nickel(III) chloride
6. SnF₂ tin(II) fluoride
7. CaI₂ calcium iodide
8. Li₃N lithium nitride
9. BeO beryllium oxide
10. Cu(C₂H₃O₂)₂ copper(II) acetate

Write the formulas for these ionic compounds

11. Chromium (IV) oxide CrO₂
12. Chromium (III) oxide Cr₂O₃
13. Aluminum oxide Al₂O₃
14. Nickel (II) bromide NiBr₂
15. Silver (I) sulfide Ag₂S
16. Magnesium chloride MgCl₂
17. Nickel (II) sulfate NiSO₄
18. Iron (III) phosphate FePO₄
19. Potassium dichromate K₂Cr₂O₇
20. Lead (IV) hydroxide Pb(OH)₄

Write the names of these ionic compounds

21. TiO₂ titanium(IV) oxide
22. Fe₂O₃ iron(III) oxide
23. CsF cesium fluoride
24. Pb(NO₃)₂ lead(II) nitrate
25. Ba(NO₃)₂ barium nitrate
26. NH₄F ammonium fluoride
27. NaNO₂ sodium nitrite
28. AuCl₃ gold(III) chloride
29. CeO₂ cerium(IV) oxide
30. (NH₄)₃PO₄ ammonium phosphate

Write the formulas of these ionic compounds.

31. Ruthenium (III) nitride RuN
32. Titanium (IV) nitrate Ti(NO₃)₄
33. Calcium nitrite Ca(NO₂)₂
34. Sodium sulfate Na₂SO₄
35. Manganese (II) sulfite MnSO₃
36. Rhenium (II) phosphate Re₃(PO₄)₂
37. Cobalt (III) chromate Co₂(CrO₄)₃
38. Yttrium (II) dichromate YCr₂O₇
39. Rubidium cyanide RbCN
40. Nickel (II) acetate Ni(C₂H₃O₂)₂