

Polyatomic Worksheet

1. Write all the possible molecular formulas and names of the molecules formed when the following metals and radicals bond.

Na CO₃²⁻ ClO₃⁻ Ca PO₄³⁻

Formula	Name
Na ₂ CO ₃	Sodium carbonate
NaClO ₃	" chlorate
Na ₃ PO ₄	" phosphate
CaCO ₃	calcium carbonate
Ca(ClO ₃) ₂	" chlorate
Ca ₃ (PO ₄) ₂	phosphate

2. Some of the following molecules do not have the proper ions showing. Determine which are wrong and correct them.

Molecule	Correction
NaOH	Correct
Li ₂ NO ₃ ⁻	LiNO ₃
Ca ₃ (CrO ₄) ₂ ²⁻	CaCrO ₄
MgCO ₃ ²⁻	MgCO ₃
Be(PO ₄) ³⁻	Be ₃ (PO ₄) ₂

3. The formula aluminum oxalate is Al₂(C₂O₄)₃. In this formula, what is the charge of the radical oxalate, C₂O₄?
- A) 1- **(B) 2-** C) 3- D) 6-
4. Given that the radical AsO₄ has charge of 3⁻, determine with the help of the periodic table, the formula of the compound resulting from its combination with magnesium.
- A) MgAsO₄ **(B) Mg₃(AsO₄)₂** C) Mg₃AsO₄ D) Mg(AsO₄)₃
5. Among the following chemical formulas, which contains two radicals?
- A) H₂SO₄ **(B) NH₄OH** C) NaNO₃ D) CaCO₃

6. Among the following chemical formulas, which contains a radical with a -3 charge?
A) $(\text{NH}_4)\text{SO}_4$ B) NaNO_3 C) $\text{Ca}_3(\text{PO}_4)_2$ D) MgCO_3

7. Each statement below indicates the electric charge on the polyatomic ion in a given compound. Which of the following statements is true?

- A) In the compound $\text{Ca}(\text{NO}_3)_2$, the electric charge on the NO_3 ion is 2-
B) In the compound $\text{Al}_2(\text{CrO}_4)_3$, the electric charge on the CrO_4 ion is 2-
C) In the compound K_2SO_4 , the electric charge on the SO_4 ion is 1-
D) In the compound NH_4Cl , the electric charge on the NH_4 ion is 1-

8. What is the molecular formula of the compound formed by combining the phosphate ion PO_4^{3-} with the magnesium ion?

- A) MgPO_4 B) Mg_3PO_4 C) $\text{Mg}_2(\text{PO}_4)_3$ D) $\text{Mg}_3(\text{PO}_4)_2$

9. The molecular formula for barium silicate is BaSiO_3 . In this formula, what is the charge of the polyatomic ion silicate SiO_3 ?

- A) 1+ B) 1- C) 2+ D) 2-

10. Among the following chemical formulas, which contains a radical with a -3 charge?

- A) $(\text{NH}_4)_2\text{SO}_4$ B) $\text{Ca}_3(\text{PO}_4)_2$ C) NaNO_3 D) MgCO_3

11. Which of the following is the correct formula for the compound aluminum cation and anion $\text{Cr}_2\text{O}_7^{2-}$?

- A) AlCr_2O_7 B) $\text{Al}_3(\text{Cr}_2\text{O}_7)_2$ C) $\text{Al}_2\text{Cr}_2\text{O}_7$ D) $\text{Al}_2(\text{Cr}_2\text{O}_7)_3$

12. Write the chemical formula for the compound formed between the anion PO_4^{3-} and each of the following cations.

- A- sodium Na_3PO_4 C- calcium $\text{Ca}_3(\text{PO}_4)_2$
B- aluminum AlPO_4

13. Each statement below indicates the electric charge on the polyatomic ion in a given compound. Which of the following statements is true?

- A) In the compound $\text{Ca}(\text{NO}_3)_2$, the electric charge on the NO_3 ion is 2-.
B) In the compound $\text{Al}_2(\text{CrO}_4)_3$, the electric charge on the CrO_4 ion is 2-.
C) In the compound K_2SO_4 , the electric charge on the SO_4 ion is 1-.
D) In the compound NH_4Cl , the electric charge on the NH_4 ion is 1-.