

AP Chemistry Summer Assignment #4

1. Give correct symbols for the following: silver, iron, lead, mercury, bromine, oxygen, fluorine, nitrogen, sodium, lithium, potassium, cesium.
2. Give the names of seven diatomic elements.
3. Sulfur with atomic number 16, mass number 32 and a two negative charge has how many protons, neutrons and electrons?
4. Rhenium-185 has in its nucleus how many protons and neutrons?
5. Write formulas for the sulfide ion, ammonium chloride, acetic acid, and barium oxide.
6. Write formulas for calcium phosphate, lithium sulfide, potassium dichromate, potassium nitrate, calcium carbonate.
7. Write formulas for nitrous acid, ammonia, magnesium nitrate, iron(II) oxide, chromium(III) oxide.
8. Write formulas for calcium phosphate, ammonium sulfate, sodium nitrate, sodium bicarbonate.
9. How many neutrons, protons and electrons are in barium-138 with a charge of two plus?
10. Define the word isotope.
11. What is the charge on the following:
 - a. the cation in CsCl
 - b. the sulfate ion
 - c. the barium ion
 - d. the nitrate ion
12. How many protons, neutrons and electrons are in:
 - a. uranium-235
 - b. uranium-238
13. What are two isotopes of carbon? of hydrogen?
14. Write the names of the following compounds:
 - a. FeSO_4
 - b. $\text{NaC}_2\text{H}_3\text{O}_2$
 - c. KNO_2
 - d. $\text{Ca}(\text{OH})_2$
 - e. NiCO_3
15. Write chemical formula for the following compounds or ions.
 - a. nitrate ion
 - b. aluminum oxide

- c. ammonium ion
- d. perchloric acid
- e. copper(II) bromide

16. How many atoms (total) are there in one formula unit of $\text{Ca}_3(\text{PO}_4)_2$

17. List all of the:

- a. halogens
- b. noble gases
- c. alkali metals
- d. alkaline earth metals

18. Give three examples of alkaline earth halides.

19. What does the law of definite proportions say?

20. What does the law of multiple proportions say?

21. How many neutrons, protons and electrons are in:

- a. Ga^{3+}
- b. Se

22. Elements in the same vertical column in the periodic table have similar what?

23. Write formulas for:

- a. aluminum hydroxide
- b. magnesium chloride
- c. potassium chromate
- d. ammonium phosphate
- e. lithium carbonate
- f. ammonium nitrate
- g. sodium sulfite
- h. magnesium oxide
- i. copper(II) acetate

24. Write formulas for the following:

- a. aluminum oxide
- b. aluminum sulfate
- c. sodium hydride
- d. potassium dichromate
- e. carbon tetrachloride
- f. silver chloride
- g. calcium sulfate
- h. nitric acid
- i. dinitrogen trioxide
- j. Tin(II) iodide

25. Write formulas for the following:

- a. potassium chromate

- b. chromium(III) carbonate
- c. dinitrogen pentoxide
- d. copper(I) oxide
- e. aluminum hydroxide
- f. hydrosulfuric acid
- g. sulfurous acid