

## Prep for Basic Chemistry: Competency 5 Practice

1. A new element has been discovered. It has an atomic number of 243 and a mass number of 429. How many protons does this new element have?
  - A 429
  - B 243
  - C 672
  - D 186
2. A helium atom is composed of \_\_\_\_\_.
  - A 2 neutrons
  - B 2 protons
  - C 2 electrons
  - D A + B
  - E B + C
  - F A + B + C
  - G A + C
3. All of the following are found outside the nucleus EXCEPT \_\_\_\_\_.
  - A protons
  - B neutrons
  - C electrons
  - D A and B
4. Ions are electrically charged because they have different numbers of...
  - A positively charged protons and negatively charged neutrons
  - B positively charged electrons and negatively charged protons
  - C positively charged electrons and negatively charged neutrons
  - D positively charged protons and negatively charged electrons
  - E positively charged neutrons and negatively charged protons
5. The number of neutrons in an atom can be calculated by subtracting the atomic number from the atomic mass.
  - A True
  - B False
6. neutron
  - A a subatomic particle in an atom with zero charge and a mass similar to that of a proton, found in the nucleus of an atom
  - B defined as 1/12 of the mass of a carbon-12 atom
  - C weighted average mass of an element's isotopes
7. When sodium loses an electron it is known as a(n)...
  - A isotope
  - B molecule
  - C atom
  - D ion

8. Group 6 elements are most likely to form ions with which of the following charges?

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

9. When chlorine gains an electron, it is known as a(n)...

- A ion
- B proton
- C energy level
- D energy sublevel

10. A **p** sublevel can hold a maximum of how many electrons?

- A 5
- B 14
- C 10
- D 6
- E 2

11. Aluminum has \_\_\_\_\_ electrons in its outermost level.

- A 3
- B 2
- C 5
- D 15

12. Which of the following elements have the same number of outermost level electrons?

- A K, Ca, F
- B Na, B, F
- C Li, Na, K
- D Na, Mg, Ca

13. What is the atomic number of the atom with an electron configuration of  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$ ?

- A 19
- B 31
- C 20
- D 17

14. The third principal energy level can contain a maximum of \_\_\_\_\_ electrons.

- A 2
- B 8
- C 32
- D 18

15. Draw the electron dot diagram for Na.

Na

16. Draw the electron dot diagram for chlorine.

Cl

17. Draw the electron dot diagram for oxygen.

O

18. Draw the electron dot diagram for I.

I

19. Draw the electron dot diagram for aluminum.

Al

20. Draw the electron dot diagram for the sodium ion.

Na

21. Draw the electron dot diagram for barium.

Ba

22. Draw the electron dot diagram for **S<sup>2-</sup>**.

S

23. Draw the electron dot diagram for **P<sup>3-</sup>**.

P

24. Draw the electron dot diagram for **Mg<sup>2+</sup>**.

Mg

25. Draw the electron dot diagram for the bromide ion.

Br

	<u>Element's name</u>	<u>Symbol</u>	<u>Atomic number</u>	<u># of protons</u>	<u>Charge on ion (#+/-)</u>
26.	_____	_____	<u>82</u>	___	___
27.	<u>Magnesium</u>	_____	_____	___	___
28.	_____	_____	_____	<u>86</u>	___

Complete the following table:

	<u>Element</u>	<u>Arrangement in levels 1 - 4</u>	<u>Electron (sublevel) structure</u>
29.	C	1=___, 2=___, 3=___, 4=___	_____
30.	Cr	1=___, 2=___, 3=___, 4=___	_____