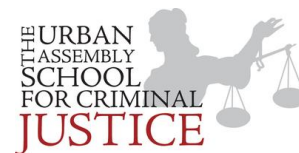


Name: _____ Date: _____

Chemistry ~ Ms. Hart

Class: Anions or Cations



3.5 HW Atomic Number and Mass Number

- 1) What distinguishes the atoms of one element from atoms of another?
- 2) How do you know how many neutrons are in an atom?
- 3) An atom has 18 protons. What element is it?
- 4) Fill in the table below with the atomic number, number of protons, electrons, and neutrons are in each neutral atom.

	Atomic Number	Mass Number	Number of Protons	Number of Neutrons	Number of Electrons
a. Beryllium	4	9			
b. Neon		20			
c. Hydrogen	1	2			
d. Oxygen		16			
e. Sodium		23			

- 5) How many neutrons are in each atom?
 - a. $^{108}_{47}\text{Ag}$
 - b. $^{80}_{35}\text{Br}$
- 6) Use the periodic table to express the number of protons and neutrons.
 - c. Iodine–127
 - d. Titanium – 48
 - e. Cesium – 133
 - f. Uranium–238
 - g. Lead – 207

Multiple Choice:

1. Which statement identifies the element arsenic?
 - (1) Arsenic has an atomic number of 33.
 - (2) Arsenic has a melting point of 84K
 - (3) An atom of arsenic in the ground state has eight valence electrons.
 - (4) An atom of arsenic in the ground state has a radius of 146 pm.
2. An atom is electrically neutral because the
 - (1) number of protons equals the number of electrons
 - (2) number of protons equals the number of neutrons
 - (3) ratio of the number of neutrons to the number of electrons is 1:1
 - (4) ratio of the number of neutrons to the number of protons is 2:1

3. The total mass of the protons in an atom of gold-198 is approximately
 - (1) 79 atomic mass units
 - (2) 119 atomic mass units
 - (3) 198 atomic mass units
 - (4) 277 atomic mass units
4. The total number of electrons in a neutral atom of any element is always equal to the atom's
 - (1) mass number
 - (2) number of neutrons
 - (3) number of protons
 - (4) number of nucleons
5. What is the charge of the nucleus of a nitrogen atom?
 - (1) -7
 - (2) 0
 - (3) +7
 - (4) 14
6. What is the charge on a particle that contains 9 protons, 10 neutrons, and 9 electrons?
 - (1) It is neutral
 - (2) It has a net charge of 1+.
 - (3) It has a net charge of 1-.
 - (4) It has a net charge of 28+.
7. If the atomic number of a neutral element is 35, and its nucleus contains 40 neutrons, which of the following is correct?
 - (1) The atom is bromine, and it has 35 electrons.
 - (2) The atom is bromine, and it has a mass number of 40.
 - (3) The atom is zirconium, and it has a mass number of 75.
 - (4) The atom is zirconium, and it has 40 electrons.
8. Compared to the entire atom, the nucleus of the atom is
 - (1) smaller and contains most of the atom's mass
 - (2) smaller and contains little of the atom's mass
 - (3) large and contains most of the atom's mass
 - (4) large and contains little of the atom's mass
9. What is the total charge of the nucleus of a carbon atom?
 - (1) -6
 - (2) 0
 - (3) +6
 - (4) +12
10. Elements on the modern Periodic Table are arranged in order of increasing
 - (1) Atomic mass
 - (2) Atomic number
 - (3) Number of neutrons
 - (4) Number of valence electrons
11. What is the mass number of an atom that has six protons, six electrons, and eight neutrons?
 - (1) 6
 - (2) 12
 - (3) 14
 - (4) 20