

Review - Section 1B

1) For each of these elements, identify the number of protons or electrons needed for an electrically neutral atom.

- a. carbon: 6 protons _____ electrons
 b. aluminum: _____ protons 13 electrons
 c. lead: 82 protons _____ electrons
 d. chlorine: _____ protons 17 electrons

2) Calculate the charge of each atom and decide whether each of these atoms is electrically neutral, a positive ion or a negative ion.

- a. sulfur: 16 protons 18 electrons _____, _____
 b. iron: 26 protons 24 electrons _____, _____
 c. silver: 47 protons 47 electrons _____, _____
 d. iodine: 53 protons 54 electrons _____, _____

3) Complete the table located below for each electrically neutral atom.

Element Symbol	Number of Protons	Number of Neutrons	Number of electrons
	6	6	6
Ca		21	
		117	78

4) A student is asked to explain the formation of a lead (II) ion (Pb^{+2}) from an electrically neutral lead atom (Pb). The student says that a lead atom must have gained two protons to make the ion. How would you correct this student's explanation?

5) Write the symbol and show the electrical charge (if any) on the following atoms or ions:

- a. hydrogen with 1 proton and 1 electron _____
 b. sodium with 11 protons and 10 electrons _____
 c. chlorine with 17 protons and 18 electrons _____
 d. aluminum with 13 protons and 10 electrons _____

6) Complete the table below:

Atom/Ion	Number of protons	Number of neutrons	Number of electrons
${}_{33}^{75}\text{As}^{-3}$			
${}_{33}^{75}\text{As}$			
${}_{33}^{75}\text{As}^{+5}$			
	27	32	29
	27	32	27

7) Make a table showing the location, charge and mass of each of the three subatomic particles.

8) Give another term for a row and 2 other terms for a column from the periodic table.

Row:

Column:

9) Give the names and symbols of two elements in the alkali metal family (Group 1).

10) Where is the noble gas (Group 18) family located on the periodic table? Where is the halogen family located (Group 17)?

11) The melting points of sulfur (S) and tellurium (Te) are 115 °C and 450 °C, respectively. Estimate the melting point of selenium (Se).

12) Predict the charge on the following elements when they form a charge.

a. sodium _____ b. calcium _____ c. chlorine _____ d. fluorine _____

13) Write the name and formula for the ionic compound that can be formed from these cations and anions:

Elements/Groups	Chemical Formula	Chemical Name
K and I		
Ca and S		
Fe ³⁺ and Br		
Ba and OH		
NH ₄ and PO ₄		
Al and O		

14) Which of these reactions is more likely to occur? Why? (Refer to your metal activity series table.)

- Calcium metal with barium chloride solution.
- Barium metal with calcium chloride solution.

15) Why would it be a poor idea to stir a solution of lead (II) nitrate with an iron spoon? (Refer to your metal activity series table.)

16) Circle the correct answers:

- Atomic radius goes (up down neither) as you move across the periodic table from left to right and (up down neither) as you move down the table.
- Ionization energy goes (up down neither) as you move across the periodic table from left to right and (up down neither) as you move down the table.
- Electronegativity goes (up down neither) as you move across the periodic table from left to right and (up down neither) as you move down the table.

17) Find the following elements on the periodic table: Rubidium, Iodine, Silver, Chlorine, Sodium. Using those 5 elements, fill in the table below:

	Highest	Lowest
Atomic Radius (Size)		
Ionization Energy		
Electronegativity		

