Chapter 6 Review Worksheet

Atomic Radius

1. What is the atomic radius of sulfur? _____

2. What is the atomic radius of sodium? _____
3. What element has an atomic radius of 71 pm?
_____

4. What element has an atomic radius of 152 pm?
_____

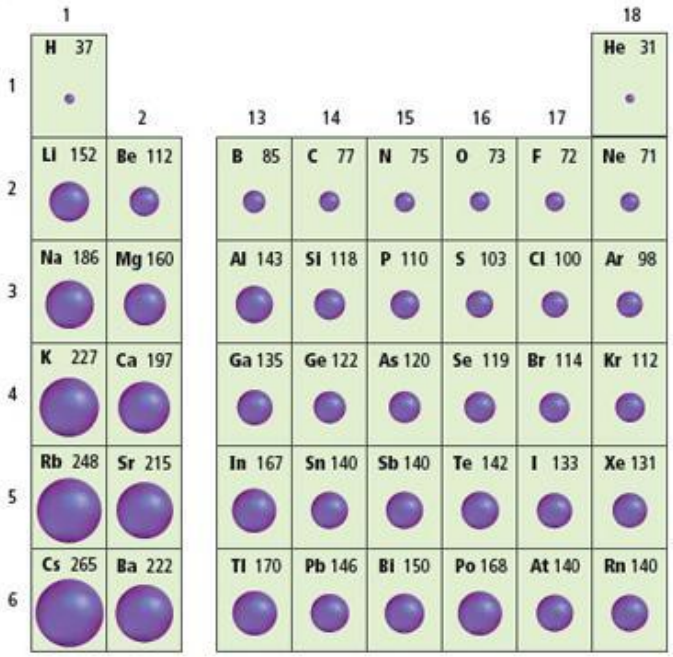
5. Rank the following atoms in order of decreasing (largest to smallest) atomic radii.

a. Al, Na, P, S _____

b. Al, Ga, In _____

c. As, Ge, Ga _____

d. Br, Ca, Cl, K _____



Ionic Radius

6. What is the ionic radius of potassium? _____

7. What is the ionic radius of aluminum? _____

8. What element has an ionic radius of 31 pm?
_____

9. What element has an ionic radius of 195 pm?
_____

10. Rank the following atoms in order of increasing (smallest to largest) ionic radii.

a. Br^-, Cl^-, F^- _____

b. Be^{2+}, Ca^{2+}, Mg^{2+} _____

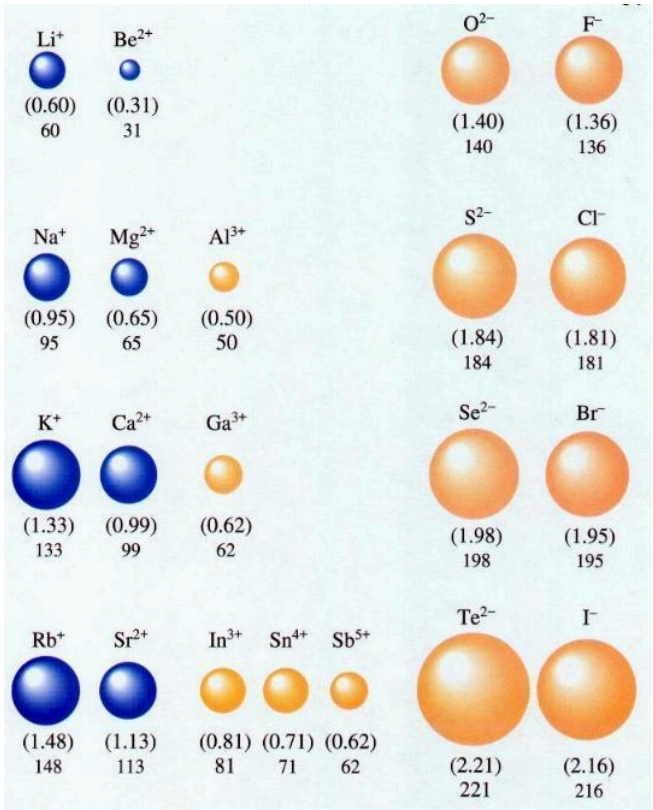
c. Ca^{2+}, Ga^{3+}, K^+_____

11. Rank the following particles in order of decreasing radii.

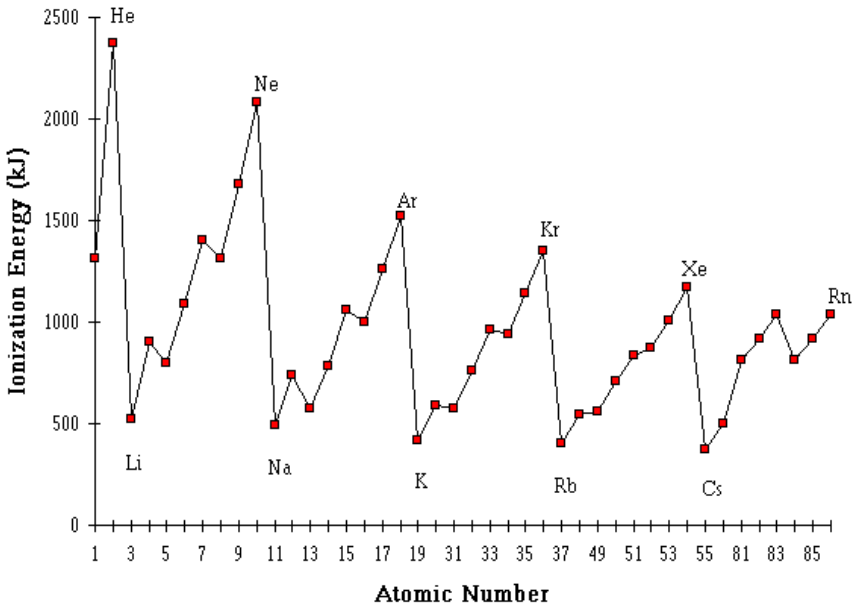
a. I, I^- _____

b. K, K^+ _____

c. Al, Al^{3+}_____



Ionization Energy



12. What is the first ionization of oxygen?
_____

13. What is the first ionization energy of fluorine? _____

14. What element has a first ionization energy of 1521 kJ / mol ?
_____

15. What element, in the third period, has a first ionization energy of 1000 kJ / mol ?
_____

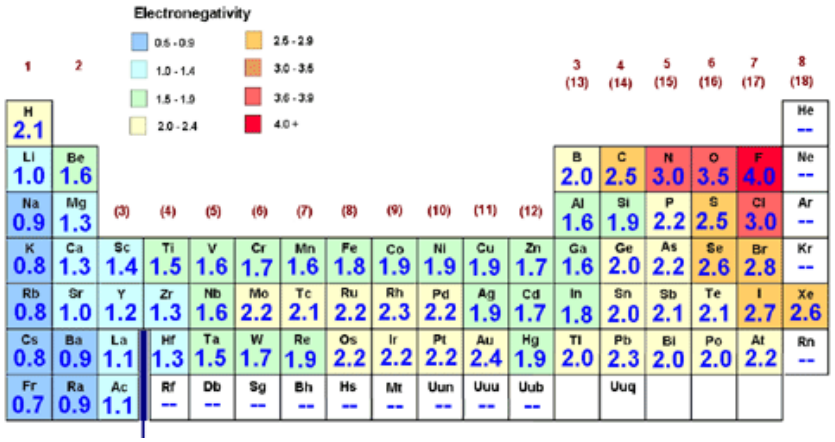
16. Rank the following in increasing first ionization energy.

a. Li, N, B _____

b. Br, F, Cl _____

c. C, Si, Ga _____

Electronegativity



17. What is the electronegativity of fluorine? _____

18. What is the electronegativity of bromine? _____

19. What is the electronegativity of lithium? _____

20. What element has an electronegativity of 2.0 ?
_____

21. What element has an electronegativity of 1.0 ?
_____

22. What element has an electronegativity of 2.6 ?
_____

23. Rank the following atoms in order of decreasing electronegativity.

a. Na, Li, K _____

b. K, Sc, Ca _____

c. As, Sn, S _____

1. Without using the periodic table, write the electron configurations for the elements in periods 2-4 of group 2. (filling order: 1s 2s 2p 3s 3p 4s 3d 4p)

   a. 2, period 2: _____

   b. 2, period 3:_____

   c. 2, period 4: _____

2. Without using the periodic table, determine the group, period and block of the elements with the following electron configurations, and categorize each as a representative element or transition element:

Configuration	Group	Period	Block	Representative or Transition?
a. $[He]2s^2 2p^4$				
b. $[Xe]6s^1$				
c. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^2$				

3. Identify the following elements:
   a. Group 8A element in the third period _____
   b. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^4$ _____
   c. Halogen in the second period _____
   d. Group 1A element with four energy levels _____

4. List the symbols for all of the representative elements with two valence electrons.
   _____

5. List the symbols for all of the representative elements with valence electrons in $s^2 p^1$.
   _____

6. The electronegativity of an element indicates the relative ability of its atoms to attract electrons to form chemical bonds. As you move across a period in the periodic table,
   a. the atomic number increases and the electronegativity increases.
   b. the atomic number increases and the electronegativity decreases.
   c. the atomic number decreases and the electronegativity increases.
   d. the atomic number decreases and the electronegativity decreases.

7. Which of the following elements has the strongest attraction for electrons?
   a. Al
   b. B
   c. O
   d. S

8. Metal is to malleable as nonmetal is to…
   a. brittle
   b. solid
   c. dull
   d. gaseous

9. Why are there no electronegativity values for the elements with atomic numbers 2, 10, and 18?
    a. The noble gases form very few compounds because they are gases.
    b. The noble gases form very few compounds because they are rare.
    c. The noble gases form very few compounds because they are radioactive.
    d. The noble gases form very few compounds because their electron configurations are very stable.

10. Elements in the same group of the periodic table have similar chemical properties because they have
    a. the same number of orbitals.
    b. the same number of valence electrons.
    c. atomic numbers that are multiples of each other.
    d. the same principal energy levels.

11. As you move down a group on the periodic table,
    a. the principal energy level increases and the first ionization energy increases.
    b. the principal energy level increases and the first ionization energy decreases.
    c. the principal energy level decreases and the first ionization energy increases.
    d. the principal energy level decreases and the first ionization energy decreases.

12. Mendeleev left blank spaces in his periodic table where he thought elements that had not yet been discovered should go. He was able to predict the properties of these elements by
    a. studying the spectra of the stars that contained them.
    b. testing their properties such as melting point, density, and valence.
    c. noting periodic trends in the properties of known elements that surrounded the blank spaces in the periodic table.
    d. studying the new elements produced by radioactive decay.