Name__________________________Per_____

Periodic Trends and Compounds Review Worksheet

Use your text and any other reference that you need except asking someone else to give you the answer.

1. Which group tends to form 1+ ions?__________________________________
2. Which group tends to form 2+ ions?__________________________________
3. Which group tends to form 1- ions?__________________________________
4. Which group tends not to form ions or react?___________________________
5. Locate the alkali metals, alkaline earth metals, halogens, noble gases, actinides, lanthanides, main group elements, semimetals (metalloids), transition metals and inner transition metals on the periodic table.
6. What repeating pattern is noticeable regarding the ionization energies of different elements? How does the periodic table account for this pattern? Answer on a separate paper.
7. Explain the pattern for electronegativity and atomic size from the periodic table. Answer on a separate paper.

Based on the concept of periodic trends, answer the following questions for these atoms: Li, Be, Mg, Na Be able to defend your answers.

8. Which element has the highest first ionization energy?___________________
9. Which element has the lowest electronegativity?________________________
10. Which element has the least metallic character?________________________
11. Which element is the largest atom?__________________________________

Based on the concept of periodic trends, answer the following questions for these atoms: P, S, Cl, F Be able to defend your answers.

12. Which element has the highest first ionization energy?___________________
13. Which element has the highest electronegativity?_______________________
14. Which element has the least metallic character?________________________
15. Which element has the largest ion?__________________________________

Based on the concept of periodic trends, answer the following questions for these atoms: Au, Zn, S, Si Be able to defend your answers.

16. Which element has the highest first ionization energy?___________________
17. Which element has the highest electronegativity?_______________________
18. Which element has the most metallic character?________________________
19. Which element has the largest atom?________________________________

20. Identify the largest and smallest atom or ion in each set:
   a. H⁺, He b. K⁺, Ca²⁺, Ar, Cl⁻, S²⁻
   c. ion of F, ion of Cl, ion of Ba, ion of Sr

21. Write the formula with charge of the ions formed by each of these elements:
    H_____ Li_____ N_____ Cl_____ Sr_____ Xe____
    S____ Cs_____ P_____ Ba_____ Br_____ Se____

21. Determine the formula of the compounds formed from these combinations:
    H & Cl ______ Na & S ________ Al & Cl ________
    Al & P ________ Mg & O ________ K & I ________
Name__________________________Per_____

Periodic Trends and Compounds Review Worksheet Answers

Use your text and any other reference that you need except asking someone else to give you the answer.

1. Which group tends to form 1+ ions? alkali metals
2. Which group tends to form 2+ ions? alkaline earth metals
4. Which group tends not to form ions or react? Noble gases
5. Locate the alkali metals, alkaline earth metals, halogens, noble gases, actinides, lanthanides, main group elements, semimetals (metalloids), transition metals and inner transition metals on the periodic table.
6. What repeating pattern is noticeable regarding the ionization energies of different elements? Ionization energy increases to the right across a period, and decreases down a group on the periodic table. How does the periodic table account for this pattern? Atoms have more protons and more pull on electrons across a period and more shells or energy levels and weaker pull on electrons down a group.
7. Explain the pattern for electronegativity and atomic size from the periodic table. Answer on a separate paper. Larger atoms and smaller electronegativity to the lower left, smaller atoms and bigger electronegativity to the upper right.

Based on the concept of periodic trends, answer the following questions for these atoms: Li, Be, Mg, Na
Be able to defend your answers.

8. Which element has the highest first ionization energy? Be
9. Which element has the lowest electronegativity? Na
10. Which element has the least metallic character? Be
11. Which element is the largest atom? Na

Based on the concept of periodic trends, answer the following questions for these atoms: P, S, Cl, F
Be able to defend your answers.

12. Which element has the highest first ionization energy? F
13. Which element has the highest electronegativity? F
14. Which element has the least metallic character? F
15. Which element has the largest ion? P

Based on the concept of periodic trends, answer the following questions for these atoms: Au, Zn, S, Si
Be able to defend your answers.

16. Which element has the highest first ionization energy? S
17. Which element has the highest electronegativity? S
18. Which element has the most metallic character? Au
19. Which element has the largest atom? Au

20. Identify the largest and smallest atom or ion in each set:
   a. H\(^+\), He   b. K\(^+\), Ca\(^{2+}\), Ar, Cl\(^-\), S\(^2-\)
   c. ion of F, ion of Cl, ion of Ba, ion of Sr

21. Write the formula with charge of the ions formed by each of these elements:
    H\(^+\) Li\(^+\) N\(^3-\) Cl\(^-\) Sr\(^{2+}\) Xe no ion
    S\(^2-\) Cs\(^+\) P\(^3-\) Ba\(^{2+}\) Br\(^-\) Se\(^2-\)

21. Determine the formula of the compounds formed from these combinations:
    HCl Na\(_2\) S AlCl\(_3\) AlP MgO KI