

Trends of the Periodic Table Homework # 1 name: _____

1. Define net nuclear charge

2. What are the net nuclear charges for these atoms? Mg ____ P ____ Sc ____ V ____

Au ____ Ir ____ Cr ____ Hg ____ Al ____ Pb ____

3. State is the GROUP TREND for net nuclear charge.

4. State the PERIOD TREND for the net nuclear charge.

5. Explain what happens with the MASS of Cobalt & Nickel. Does this destroy the general trend?

6. State the group trend for atomic radius. (fill in the boxes)

Group 2	atomic radius (pm)
Be	
Mg	
Ca	
Sr	
Ba	

7. Why does this trend occur?

8. State the period trend for atomic radius. (fill in the boxes)

Period 3	Na	Mg	Al	Si	P	S	Cl	Ar
atomic radius (pm)								

9. Why does this trend occur?

Trends of the Periodic Table Homework # 2 name: _____

1. What is the most nonmetallic element on the periodic table?
2. What is the most metallic element on the periodic table?
3. Circle the most metallic of these three elements. Zinc Copper Iron
4. Circle the most non metallic of these three elements Aluminum Fluorine Sulfur
5. What is the name of the group 2 metals? _____
6. What is the name of the group 17 nonmetals? _____
7. What is the name of the group 1 metals? _____
8. How many elements are in group 3? _____
9. List the symbols of ALL of the non metals: _____
10. List the symbols of ALL of the metalloids: _____
11. The number of metals on the Periodic Table is $118 - 22 =$ _____
12. Name five metallic properties
13. Name five nonmetallic properties
14. Groups 2-12 (and the “triangle” of metals from Al to Tl to Po) make up what are known as the _____ metals
15. Define metalloid
16. Silicon and Antimony are metalloids; why?
17. How many protons, neutrons and electrons are in the element with the greatest density on the table?
18. What is the mass of the most common isotope of the element tantalum? _____ amu

1. Define 1st Ionization Energy.
2. State the GROUP TREND for 1st Ionization energy?
3. Why does this trend occur?
4. State the PERIOD TREND for 1st Ionization energy?
5. Why does this trend occur?
6. What part of the periodic table have the atoms with the highest 1st Ionization energy?
7. Why does this occur?
8. Define Electronegativity.
9. Define relative scale.
10. Define arbitrary scale.
11. Which element has the highest EN value? ____ What does that mean about this atom?
12. Which part of the periodic table tends to have very low EN values? Why?

Trends of the Periodic Table Homework # 4 name: _____

1. Which is bigger, which is smaller? the Na Atom or the Na^{+1} cation? Say it in a sentence.
2. Which is bigger, which is smaller? the Mg Atom or the Mg^{+2} cation? Say it in a sentence.
3. Which is bigger, which is smaller? the Al Atom or the Al^{+3} cation? Say it in a sentence.
4. Which is bigger, which is smaller? the N Atom or the N^{-3} anion? Say it in a sentence.
5. Which is bigger, which is smaller? the O Atom or the O^{-2} anion? Say it in a sentence.
6. Which is bigger, which is smaller? the F Atom or the F^{-1} anion? Say it in a sentence.
7. Why are cations smaller than their atoms?
8. Why are anions always larger than their atoms?
9. State the GROUP TREND for cation size.
10. State the PERIOD TREND for cation size.
11. State the GROUP TREND for anion size.
12. State the PERIOD TREND for anion size.