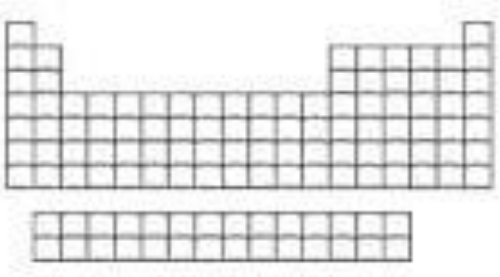
Name: _____ Block: _____

Periodicity Homework

1. **ATOMIC/IONIC RADIUS REVIEW**
   a. When families of the periodic table are examined, what trend is observed for atomic size?

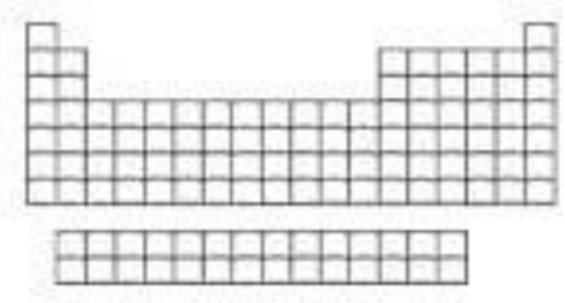
   b. Phosphorus is smaller than Aluminum even though Phosphorus has more valence electrons. Why?

   c. Circle the atom or ion that has the **biggest radius** then explain **<u>why</u>**:
      i. F or Br
      ii. Mg or S
   d. Arrange the following atoms in order of increasing atomic size:
      i. Cl, Br, I
      ii. Ca, Ba, Ra
      iii. S, P, Si
   e. Draw the trend of ***increasing*** atomic radius using an arrow(s) on the periodic table



2. **IONIZATION ENERGY REVIEW**
   a. What does ionization energy mean:

   a. Circle the atom that has the **highest ionization energy** then explain **<u>why</u>**:
      i. Li or O
      ii. Mg or Sr
      iii. Ga or Br
      iv. Ga or B
   b. Draw the trend of ***increasing*** **ionization** using an arrow(s) on the periodic table



3. **ELECTRONEGATIVITY REVIEW**
   c. What does electronegativity mean:

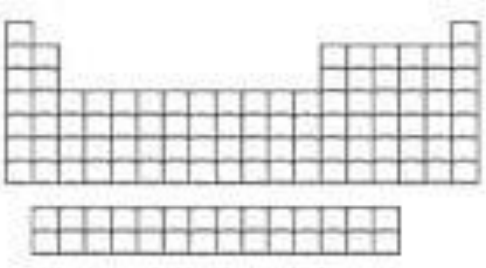
   d. Circle the atom that has the **highest electronegativity** then explain **<u>why</u>**:
      i. Li or O

ii. Mg or Sr

iii. Ga or Br

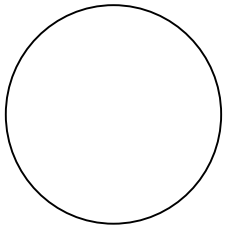
iv. Ga or B

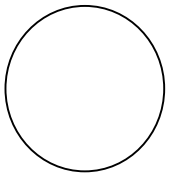
e. Draw the trend of ***increasing*** **electronegativity** using an arrow(s) on the periodic table



4. **ION SIZE CHANGE** *(use your Trend: Ion Charge in the main block elements note sheet)*

a. Label the atoms below as either Sodium or as Sodium Ion:





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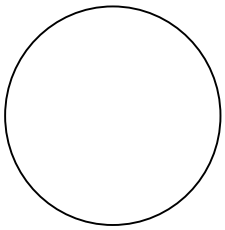
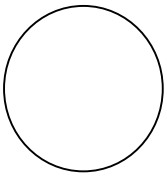
b. Label the atoms below as either Oxygen or as Oxygen Ion:





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c. The ionic radius of Aluminum (Al^{+3}) is 54 pm while the ionic radius of Sodium (Na^{+1}) is 102pm. Explain why Aluminum ions have smaller radii than Sodium ions even though both ions have the same electron configuration.

d. Arrange the following in order of increasing ionic size.

- I^-, Br^-, Cl^-
- P^{3-}, S^{2-}, Cl^-
- Ba^{2+}, Sr^{2+}, Ca^{2+}