Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_

**WS Atomic & Ionic Radii from Notes Part 3 on the Periodic Table**

**Atomic Size**

1. As you go down a group, atomic radius gets \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 This happens because \_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

###  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

###  As you go right across a period, atomic radius gets \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

###  This happens because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

###  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### 2. Which of the following elements has a larger atomic radius? (*circle one*)

 a) fluorine or bromine

 b) sodium or magnesium

 c) potassium or strontium

3. Write the ***name*** of the element with the largest atom in each of the following groups.

 a) F, Cl, Br \_\_\_\_\_\_\_\_\_\_\_

b) N, O, F \_\_\_\_\_\_\_\_\_\_\_

c) C, N, P, S \_\_\_\_\_\_\_\_\_\_\_

4. Write the ***symbols*** of the elements in order of ***increasing*** atomic size. (*smallest to largest*)

 a) oxygen, aluminum, magnesium \_\_\_\_<\_\_\_\_<\_\_\_\_

 b) strontium, tin, iron \_\_\_\_<\_\_\_\_<\_\_\_\_

 c) calcium, potassium, carbon \_\_\_\_<\_\_\_\_<\_\_\_\_

### 5. Write the *symbols* of the elements in order of *decreasing* atomic size. (*largest to smallest*).

 a) Na, K, Cl \_\_\_\_>\_\_\_\_>\_\_\_\_

 b) C, Ge, Sn \_\_\_\_>\_\_\_\_>\_\_\_\_

c) Al, C, B \_\_\_\_>\_\_\_\_>\_\_\_\_

d) Ba, Zn, O \_\_\_\_>\_\_\_\_>\_\_\_\_

### Ions & Ionic Size

### 7. What is an ion? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### 8. Metals lose/gain electrons to form positive \_\_\_\_\_\_\_\_\_.

### 9. Nonmetals lose/gain electrons to form negative \_\_\_\_\_\_\_\_\_.

### 10. Positive cations are larger/smaller than the neutral atoms from which they formed because

###  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

###  Negative anions are larger/smaller than the neutral atoms from which they formed because

###  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

### 11. Circle the element or ion that is larger.

 a) K or K+1

 b) S or S–2

 c) Ca or Ca+2

### 12. Circle the element or ion that is smaller.

 a) Cl or Cl–1

 b) Mg or Mg+2

 c) Al or Al+3

13. In the following picture, A is an element and B is an ion of the same element.

 Is the ion B a positive or negative ion of atom A? \_\_\_\_\_\_\_\_\_\_\_\_

**A**

 **B**

###

###  Explain your answer.

###  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

###  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_