

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

## Trends in Periodic Table

Use the periodic table and your knowledge of periodic trends to answer the following questions.

1. Arrange the following group of elements in the order of increasing ionization energy.

a) Be, Mg, Sr

b) Bi, Cs, Ba

c) Na, Al, S

d) Co, Cl, K

2. Which element in each pair has the highest electronegativity value? Circle the correct answer.

a) Cl , F

b) C , N

c) Mg , Ne

d) As , Ca

3. Why do atoms get smaller as you move from left to right in the periodic table?

4. Circle the atom with the largest atomic radius and put a square on the element with the smallest atomic radius.

Cu   K   Ni   Br

Explain why you made these choices.

5. Circle the element with the highest ionization energy and put a square around the element with the lowest ionization energy.

Cu   K   Ni   Br

Explain why you made these choices.

6. Circle the element with the highest electronegativity and put a square around the element with the lowest electronegativity.

Cu   K   Ni   Br

Explain why you made these choices.

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# Trends in Periodic Table

## Answers

1. Arrange the following group of elements in the order of increasing ionization energy.

- a) Be, Mg, Sr     $Sr < Mg < Be$                       b) Bi, Cs, Ba     $Cs < Ba < Bi$   
c) Na, Al, S     $Na < Al < S$                               d) Co, Cl, K     $K < Ca < Cl$

2. Which element in each pair has the highest electronegativity value? Circle the correct answer.

- a) Cl , **F**                      b) C , **N**                      c) **Mg** , Ne                      d) **As** , Ca

3. Why do atoms get smaller as you move from left to right in the periodic table?

Because as we go from left to right, the number of protons increases, increasing the attractive force between the nucleus and the valence electrons. As a result, the outer electrons are held closer to the nucleus.

4. Circle the atom with the largest atomic radius and put a square on the element with the smallest atomic radius.

Cu    **K**    Ni    **Br**

Explain why you made these choices.

All the elements are in the same period. As you go across a period, the trend is that the atomic radius decreases. Therefore, K on the far left is the largest, and Br on the far right is the smallest.

5. Circle the element with the highest ionization energy and put a square around the element with the lowest ionization energy.

Cu    **K**    Ni    **Br**

Explain why you made these choices.

All the elements are in the same period. As you go across a period, the trend is that the ionization energy increases. Therefore, K on the far left has the lowest ionization energy, and Br on the far right has the highest ionization energy.

6. Circle the element with the highest electronegativity and put a square around the element with the lowest electronegativity.

Cu    **K**    Ni    **Br**

Explain why you made these choices.

All the elements are in the same period. As you go across a period, the trend is that the electronegativity increases. Therefore, K on the far left has the lowest electronegativity, and Br on the far right is the highest electronegativity.