

Name _____

Regents Chemistry

Chapter 4

Trends of the Periodic Table

Ionization Energy

What is it? _____

Trend: _____

Reason for Trend across Period: _____

Reason for Trend down Group: _____

Atomic Radius:

What is it? _____

Trend: _____

Reason for Trend across Period: _____

Reason for Trend down Group: _____

Electronegativity:

What is it? _____

Trend: _____

Reason for Trend across Period: _____

Reason for Trend down Group: _____

Ionic Size

What is it? _____

Questions:

Which element forms an ion that is larger than its atom?

1. Cl
2. Ca
3. Li
4. Mg

Which atom has a radius larger than the radius of its ion?

1. Cl
2. Ca
3. S
4. Se

Which of the following elements in Period 3 has the greatest metallic character?

1. Ar
2. Si
3. Mg
4. S

Which period of the Periodic Table contains more metallic elements than nonmetallic elements?

1. Period 1
2. Period 2
3. Period 3
4. Period 4

As the elements in Period 3 are considered from left to right, they tend to

1. lose electrons more readily and increase in metallic character
2. lose electrons more readily and increase in nonmetallic character
3. gain electrons more readily and increase in metallic character
4. gain electrons more readily and increase in nonmetallic character

Compared to the nonmetals in Period 2, the metals in Period 2 generally have larger

1. ionization energies
2. electronegativities
3. atomic radii
4. atomic numbers

Which of the following Group 2 elements has the *lowest* first ionization energy?

1. Be
2. Mg
3. Ca
4. Ba

Which of the following atoms has the greatest tendency to attract electrons?

1. barium
2. beryllium
3. boron
4. bromine

In which shell are the valence electrons of the elements in Period 2 found?

1. 1
2. 2
3. 3
4. 4

Which of the following ions has the *smallest* radius?

1. F⁻
2. Cl⁻
3. K⁺
4. Ca²⁺

The ability of carbon to attract electrons is

1. greater than that of nitrogen, but less than that of oxygen
2. less than that of nitrogen, but greater than that of oxygen
3. greater than that of nitrogen and oxygen
4. less than that of nitrogen and oxygen

Which trends appear as the elements in Period 3 are considered from left to right?

1. Metallic character decreases, and electronegativity decreases.
2. Metallic character decreases, and electronegativity increases.
3. Metallic character increases, and electronegativity decreases.
4. Metallic character increases, and electronegativity increases.

As the atoms in Period 3 of the Periodic Table are considered from left to right, the atoms generally show

1. an increase in radius and an increase in ionization energy
2. an increase in radius and a decrease in ionization energy
3. a decrease in radius and an increase in ionization energy
4. a decrease in radius and a decrease in ionization energy

Which Group 16 element has only unstable isotopes?

1. Po
2. Te
3. Se
4. S

