

Chemistry: Periodic Trends Review Guide

Name _____

Atomic Size

- Elements Z and X are compared. Element Z is larger than Element X. Based on this you could say:
 - Element Z is further to the left side of the periodic table
 - Element X is closer to the top of the periodic table
 - Element Z and X are probably in the same group
 - A and/or B
- Atomic radius generally increases as we move _____.
 - down a group and from right to left across a period
 - up a group and from left to right across a period
 - down a group and from left to right across a period
 - up a group and from right to left across a period
- The atomic radius of main-group elements generally increases down a group because _____.
 - effective nuclear charge increases down a group
 - effective nuclear charge decreases down a group
 - effective nuclear charge zigzags down a group
 - the principal quantum number of the valence orbitals increases
- Which one of the following atoms has the largest atomic radius?
 - O
 - F
 - S
 - Cl
- Which one of the following atoms has the largest atomic radius?
 - Sr
 - Ca
 - K
 - Rb
- Which one of the following has the smallest atomic radius?
 - Na
 - Cl
 - P
 - Br
- Which one of the following atoms has the largest atomic radius?
 - I
 - Co
 - Ba
 - Sr
- Which one of the following elements has the largest atomic radius?
 - Sb
 - As
 - S
 - Se
- Which one of the following elements has the largest atomic radius?
 - O
 - F
 - Al
 - P
- In which of the following atoms is the 2s orbital closest to the nucleus?
 - S
 - Cl
 - P
 - Si
- Which of the following correctly lists the five atoms in order of increasing size (smallest to largest)?
 - F < K < Ge < Br < Rb
 - F < Ge < Br < K < Rb
 - F < K < Br < Ge < Rb
 - F < Br < Ge < K < Rb
- In which of the following atoms is the 3s orbital closest to the nucleus?
 - Br
 - Cl
 - At
 - I
- Which of the following correctly lists the five atoms in order of increasing size (smallest to largest)?
 - O < F < S < Mg < Ba
 - F < O < S < Mg < Ba
 - F < O < S < Ba < Mg
 - O < F < S < Ba < Mg

Electronegativity

- 14) The ability of an atom in a molecule to attract electrons is best quantified by the _____.
- A) paramagnetism B) diamagnetism
C) electronegativity D) first ionization potential
- 15) Electronegativity _____ from left to right within a period and _____ from top to bottom within a group.
- A) decreases, increases B) increases, increases
C) increases, decreases D) stays the same, increases
- 16) Of the atoms below, _____ is the most electronegative. A) F B) O C) Cl D) N
- 17) Of the atoms below, _____ is the most electronegative. A) Si B) Cl C) Rb D) Ca
- 18) Of the atoms below, _____ is the least electronegative. A) Rb B) F C) Si D) Cl
- 19) Which of the elements below has the largest electronegativity? A) Si B) Mg C) P D) S

Ionization Energy

- 20) The first ionization energies of the elements _____ as you go from left to right across a period of the periodic table, and _____ as you go from the bottom to the top of a group in the table.
- A) increase, increase B) increase, decrease
C) decrease, increase D) decrease, decrease
- 21) Of the choices below, which gives the order for first ionization energies?
- A) Cl > S > Al > Ar > Si B) Ar > Cl > S > Si > Al
C) Al > Si > S > Cl > Ar D) Cl > S > Al > Si > Ar
- 22) Of the following atoms, which has the largest first ionization energy? A) Br B) O C) C D) P
- 23) Of the following elements, which has the largest first ionization energy? A) Na B) Al C) Se D) Cl
- 24) Of the following elements, which has the largest first ionization energy? A) Ca B) Rb C) Sr D) K
- 25) Of the following elements, which has the largest first ionization energy? A) Se B) As C) S D) Sb

26 - 28. Electron Configuration Worksheet. Write the electron configuration for each of the following elements.

Element Name	Element Symbol	# of electrons	Electron Configuration (Long-hand)	Electron Configuration (Short-hand)
Zinc	Zn			
Bromine	Br			
Zirconium	Zr			

Average Atomic Mass.

29) In a wagon there are ten pie pumpkins that each weight 1-kilogram, seventeen carving pumpkins that each weigh 2.5-kilograms, and three monster pumpkins that each weigh 4-kilograms. Determine the average mass of the pumpkins in the wagon.

30) Titanium has five common isotopes: Titanium-46 (8.0%), Titanium-47 (7.8%), Titanium-48 (73.4%), Titanium-49 (5.5%), and Titanium-50 (5.3%). What is the average atomic mass of titanium? (Hint: Use the mass number as its mass.)

Periodic Table Trends . . . Again! For each of the following, circle the correct element.

Li	Si	S	metal
N	P	As	smallest ionization energy
K	Ca	Sc	largest atomic mass
S	Cl	Ar	member of the halogen family
Al	Si	P	greatest electron affinity
Ga	Al	Si	largest atomic radius
V	Nb	Ta	largest atomic number
Te	I	Xe	member of noble gases
Si	Ge	Sn	4 energy levels
Li	Be	B	member of alkali metals
As	Se	Br	6 valence electrons
H	Li	Na	nonmetal
Hg	Tl	Pb	member of transition metals
Na	Mg	Al	electron distribution ending in s2p1
Pb	Bi	Po	metalloid
B	C	N	gas at room temperature
Ca	Sc	Ti	electron distribution ending in s2d2