

- 1) Rank the following elements by increasing atomic radius:
carbon, aluminum, oxygen, potassium.
- 2) Rank the following elements by increasing electronegativity:
sulfur, oxygen, neon, aluminum.
- 3) What is the difference between electron affinity and ionization energy?
- 4) Why does fluorine have a higher ionization energy than iodine?
- 5) Why do elements in the same family generally have similar properties?

Periodic Trends

For each of the following exercises, explain your answer.

Exercises:

1. In each of the following pairs, circle the species with the higher first ionization energy:

- (a) Li or Cs
- (b) Cl^- or Ar
- (c) Ca or Br
- (d) Na^+ or Ne
- (e) B or Be

2. In each of the following pairs, circle the species with the larger atomic radius:

- (a) Mg or Ba
- (b) S or S^{2-}
- (c) Cu^{+2} or Cu
- (d) He or H^-
- (e) Na or Cl

3. Circle the best choice in each list:

- (a) highest first ionization energy: C, N, Si
- (b) largest radius: S^{2-} , Cl^- , Cl
- (c) highest electronegativity: As, Sn, S
- (d) smallest atom: Na, Li, Be
- (e) largest atom: Fe, Co, Ni
- (f) lowest first ionization energy: K, Na, Ca
- (g) highest second ionization energy: Na, Mg, Al
- (h) lowest second ionization energy: Ar, K, Ca