Textbook Homework

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Chapter 7

q119

Se has a lower ionization energy than expected due to having the two electrons in the same orbit. This creates more repulsion and allows one of the electrons to be easier removed.

q120

The order would be B, Be, C, N, O.

Be is after B because the electrons are closer to the nucleus (no `p` orbital) and are harder to remove. Otherwise, it follows the periodic trend of higher ionization energy to the right.

q 159

Alkaline-Earth, because of 2 valence electrons.

q 169

- Element A: Te (Tellurium)
- Element B: Ge (Germanium)
- Element C: F (Flourine), last electron jumped an energy level.

Homework Problems

K

- Electron Configuration: [Ar] 4s1
- Orbital Notation: [↑]
- Quantum Numbers
  - 4 0 0 +1/2

K+

- Electron Configuration: [Ar]
- Orbital Notation: N/A
- Quantum Numbers: N/A

Cu

- Electron Configuration: [Ar] 4s2 3d9
- Orbital Notation: [↑↓] [↑↓] [↑↓] [↑↓] [↑]
- Quantum Numbers:
  - 3 2 -2 +1/2
  - 3 2 -2 -1/2
  - 3 2 -1 +1/2
  - 3 2 -1 -1/2
  - 3 2 0 +1/2
  - 3 2 0 -1/2
  - 3 2 1 +1/2
  - 3 2 1 -1/2
  - 3 2 2 +1/2

Period Table Trends

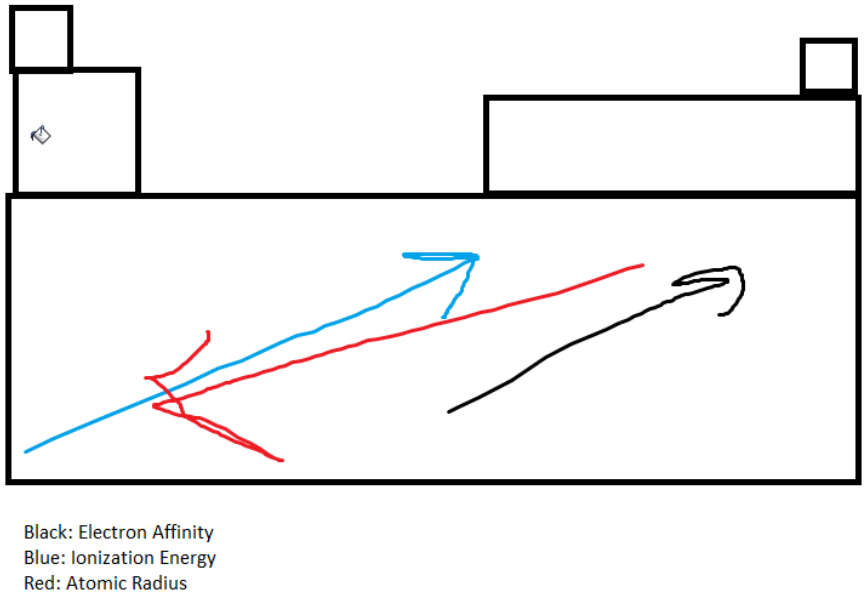

Figure 1: table-trends