

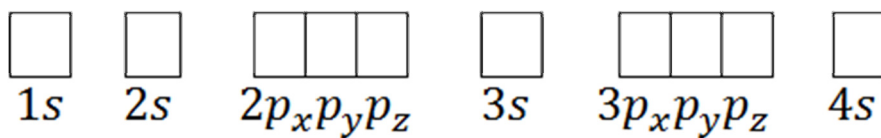
## Electron Configuration Practice

Name \_\_\_\_\_

Writing the electron for atoms is how we understand where electrons are around the nucleus of atoms. Remember that it is the valence shell electrons that are active in bonding when they are lost, gained, or shared. Electrons can be in energy levels around the nucleus (*the numbers*) and in orbitals within the energy levels (*the s, p, d, f letters*). When you write electron configuration, you must follow three rules (paraphrased here): 1) *the Aufbau Principle says that you must fill lower energy levels first before you move to the next higher level*, 2) *the Pauli exclusion principle says that no two electrons in the same atom can have the same set of four quantum numbers, so something about the energy level, orbital, and spin of each electron must be different from all others*, and 3) *Hund's Rule states that you must equally distribute electrons within each portion of an orbital before you add a second electron to that orbital and that all singly occupied orbitals must have the same spin (up first, the down)*.

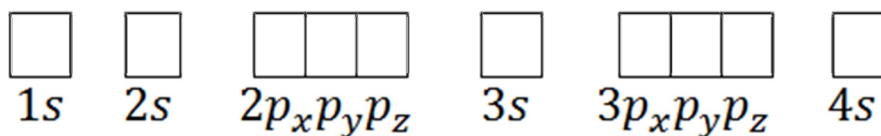
**Using arrows for electrons draw the electron configuration into the boxes and write the electron configuration on the line.**

1. Use arrows to complete the electron configuration for Nitrogen (7 electrons).



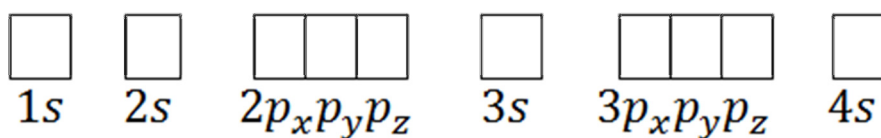
Write out the configuration for Nitrogen: \_\_\_\_\_

2. Use arrows to complete the electron configuration for Phosphorus (15 electrons).



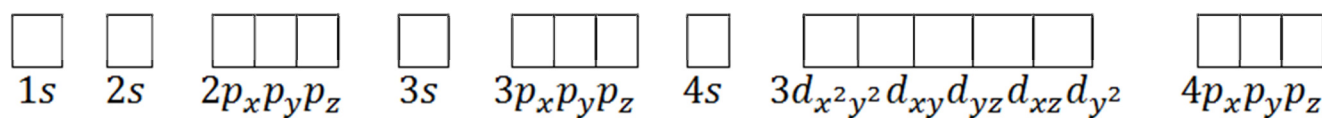
Write out the configuration for Phosphorus: \_\_\_\_\_

3. Use arrows to complete the electron configuration for Potassium (19 electrons).



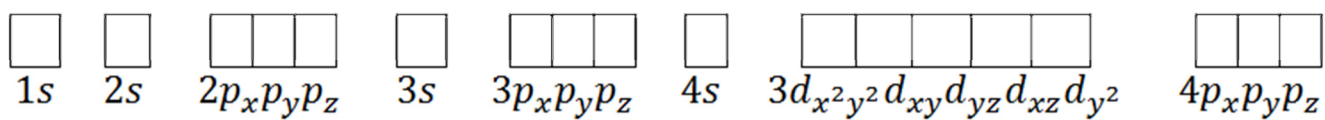
Write out the configuration for K: \_\_\_\_\_

4. Use arrows to complete the electron configuration for Iron (26 electrons).



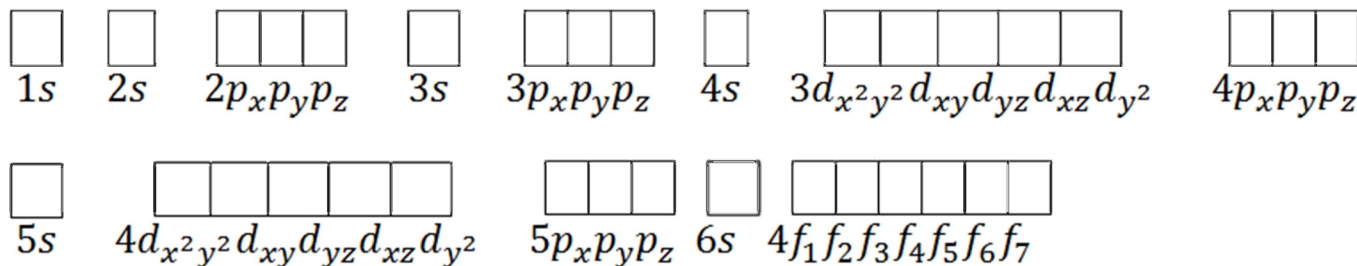
Write out the configuration for Fe: \_\_\_\_\_

5. Use arrows to complete the electron configuration for Bromine (35 electrons).



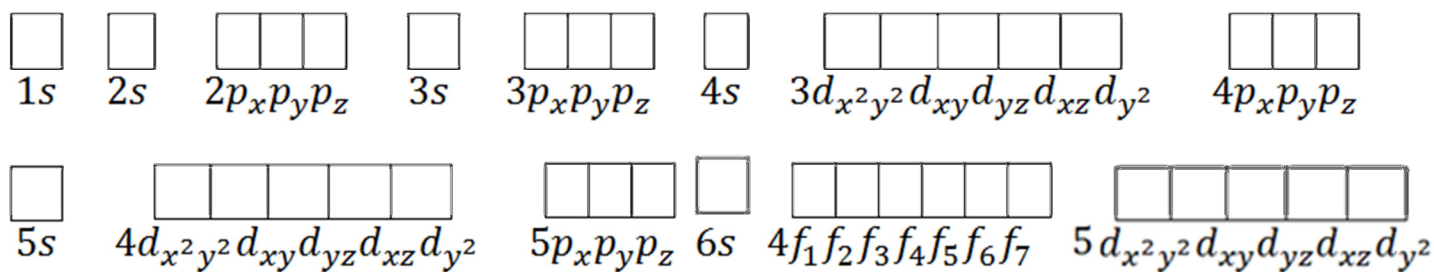
Write out the configuration for Br: \_\_\_\_\_

6. Use arrows to complete the electron configuration for Antimony (Sb) (51 electrons).



Write out the configuration for Sb: \_\_\_\_\_

7. Use arrows to complete the electron configuration for Tungsten (74 electrons).



Write out the configuration for W: \_\_\_\_\_

**Write the electron configuration for the following elements. (Use the arrow chart if needed.)**

8. Beryllium ( \_\_\_\_ electrons): \_\_\_\_\_

9. Nitrogen ( \_\_\_\_ electrons): \_\_\_\_\_

10. Manganese ( \_\_\_\_ electrons): \_\_\_\_\_

11. Zinc ( \_\_\_\_ electrons): \_\_\_\_\_

12. Mercury ( \_\_\_\_ electrons): \_\_\_\_\_

Identify the element for which the electron configuration is shown:

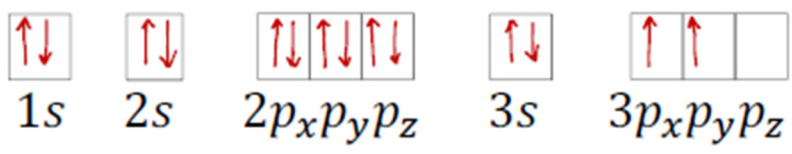
13.  $1s^2 2s^2 2p^5$  \_\_\_\_\_

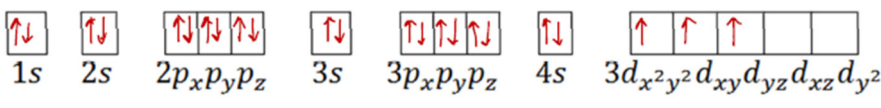
14.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^8$  \_\_\_\_\_

15.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^2$  \_\_\_\_\_

16.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^1$  \_\_\_\_\_

17.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^6 7s^2 5f^5$  \_\_\_\_\_

18.  \_\_\_\_\_

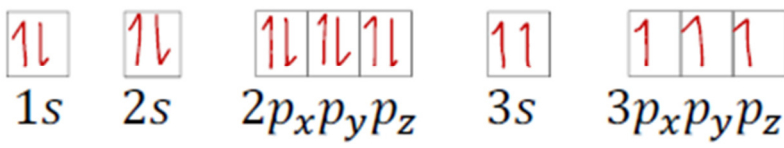
19.  \_\_\_\_\_

What is wrong with the electron configurations shown below?

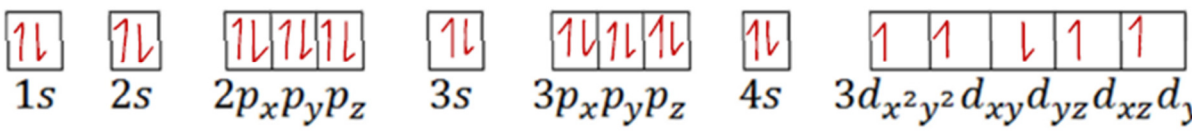
20.  $1s^2 2s^2 2p^6 3s^2 3p^4 4s^2 3d^8$  \_\_\_\_\_

21.  $1s^2 2s^1 2p^6$  \_\_\_\_\_

22.  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4p^6 5s^2 4d^{10}$  \_\_\_\_\_

23.  \_\_\_\_\_

24.  \_\_\_\_\_

25.  \_\_\_\_\_