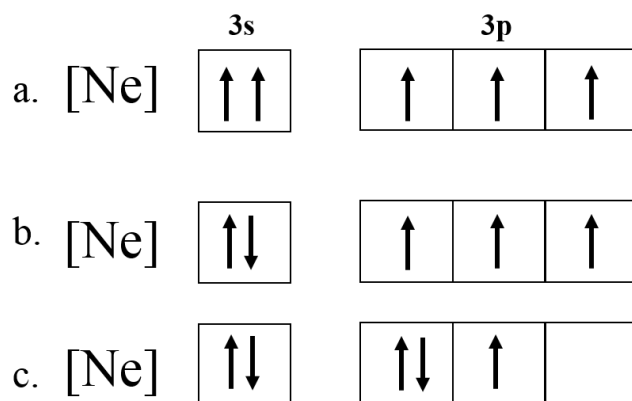


Electron Configurations

1. Which of the following is the correct orbital diagram for the ground-state electron configuration of phosphorus? Explain what is wrong with each of the others.



2. A recently discovered element, 114, should most closely resemble Pb (since it is directly under Pb on the periodic table).
- a. Write the electron configuration of Pb

b. Write a plausible electron configuration for element 114.

3. Write the ground-state electron configuration for the following elements

- a. Sn
- b. P^{3-}
- c. Ta^{2+}
- d. Cr
- e. Pd^{2+}

4. Name the element to which each of these electron configurations corresponds

- a. $[\text{Ar}] 4s^2 3d^{10} 4p^3$
- b. $[\text{Ne}] 3s^2 3p^3$



Periodic Trends and Atomic Properties

1. Indicate the larger atom
 - a. Te or Br
 - b. K or Ca
 - c. Ca or Cs
 - d. N or O
 - e. O or P
 - f. Al or Au
2. When two species are **isoelectronic**, this means that they have the same number of electrons. Answer the following questions and give an example of each if applicable
 - a. Is it possible for two different atoms to be isoelectronic?
 - b. Two different anions?
 - c. A cation and an anion?
3. Arrange the following isoelectronic species in order of increasing radius: Rb^+ , Y^{3+} , Br , Sr^{2+} , Se^{2-}
4. Which of the following species would be diamagnetic and which paramagnetic?
 - a. K^+
 - b. Cr^{3+}
 - c. Zn^{2+}
 - d. Cd
 - e. Co^{3+}
 - f. Sn^{2+}