

Quantum Numbers Worksheet

1. What are quantum numbers?
2. What information does the first three quantum numbers indicate?
3. What does the fourth quantum number indicate?
4. What is the shape of the s orbital?
5. What is the shape of the p orbital?
6. There is only one orientation of the s orbital (True or False).
7. How many possible orientations are there for the p orbital?
8. Name the orbitals described by the following quantum numbers
 - a. $n = 3, L = 0$
 - b. $n = 3, L = 1$
 - c. $n = 3, L = 2$
9. Give the n and L values for the following orbitals
 - a. 1s
 - b. 3s
 - c. 2p
10. What are the possible m_L values for the following types of orbitals?
 - a. s
 - b. p
 - c. d
11. The third principal energy level can hold 18 electrons. What orbitals are found in the third principal energy level?
12. Write electron configurations for the following atoms:
 - a. H
 - b. Li
 - c. N
 - d. F