

Orbitals and Quantum Numbers Practice Questions

1. What are the shapes of s, p, and d orbitals respectively?

2. How many 1s orbitals are there in an atom?

3. What is the maximum number of orbitals with:

$$n = 4 \quad l = 1$$

$$n = 2 \quad l = 2$$

$$n = 3 \quad l = 2$$

$$n = 5 \quad l = 1 \quad m_l = -1$$

4. Which orbitals cannot exist?

2p 3p 4d 3f 6s 2d

5. Write a set of quantum numbers for a 4f orbital.

6. Describe the electrons defined by the following quantum numbers:

n	l	m_l
3	0	0
2	1	1
4	2	-1
3	3	2
3	1	2