CONCEPT: QUANTUM NUMBERS: NODES

- A **Node** is the region within an atom where the probability of finding an electron is _____.
  - □ Electron Shell is the region where electron resides with highest probability.
  - □ Total number of nodes = _____.

EXAMPLE: How many total nodes are present in a 4d orbital?

a) 1 b) 3 c) 4 d) 5 e) 7

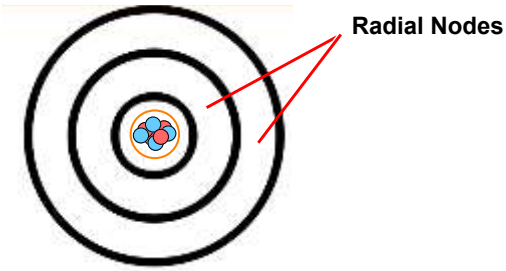
Radial and Angular Nodes

- A node can further be classified as either a ***radial node*** or ***angular node***.

Radial & Angular Nodes

Radial Node

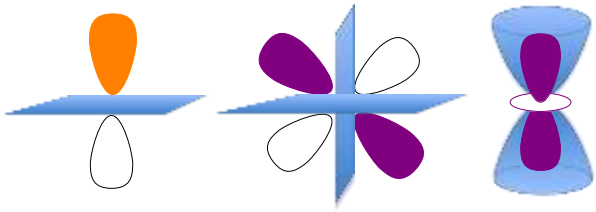
The spherical regions that separate the different shells.



□ # of radial nodes = _____.

Angular Node

Flat planes or cones that dissect the orbitals of an atom.



□ # of angular nodes = _____.

EXAMPLE: How many radial nodes exist for a 5f orbital?

a) 1 b) 3 c) 4 d) 5 e) 7

PRACTICE: Which atomic orbital has the fewest angular nodes?

a) 3d b) 4p c) 7s d) 5d e) 6f

PRACTICE: Which atomic orbital has the greatest number of radial nodes?

a) 3s b) 4s c) 2p d) 6d e) 4f