Warm-Up

Name	Symbol	+ Protons	− Electrons	Ionic Charge
iron ion	Fe^{2+}	26	24	2+
chromium ion	Cr^{3+}	24	21	3+
silver atom	Ag	47	47	0
Selenide ion	Se^{2-}	34	36	2-

Homework - Ions Worksheet

			+	−		
(8)	zinc ion	Zn^{2+}	30	28	lost 2	2+
(18)	plutonium atom	Pu	94	94	0	0
(20)	unnilseptium atom	Uns	107	107	0	0

Quantum Mechanical Model of an Atom

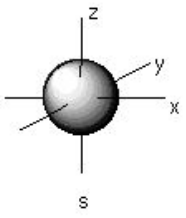
The quantum mechanical model determines the allowed energies an electron can have and how likely it is to find the electron in various locations around the nucleus.

atomic orbital - region of space in which there is a high probability to find an electron

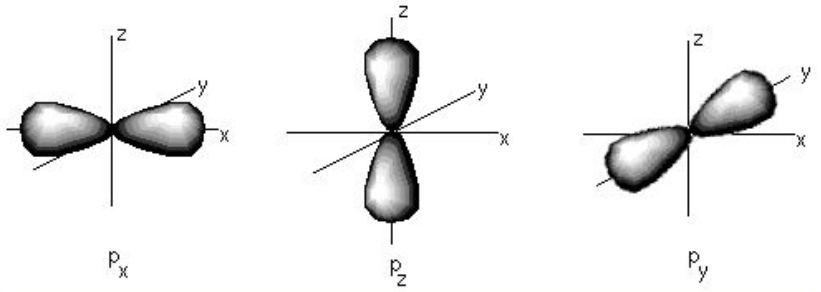
Principal quantum numbers (**n**) represent energy levels of electrons (i.e., n = 1, 2, 3, 4, etc.)

There may be several orbitals with different shapes at different energy levels.

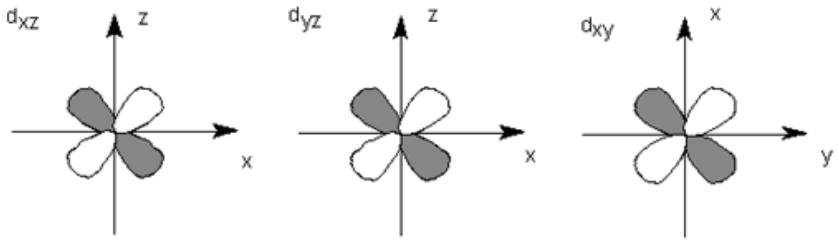
s orbital

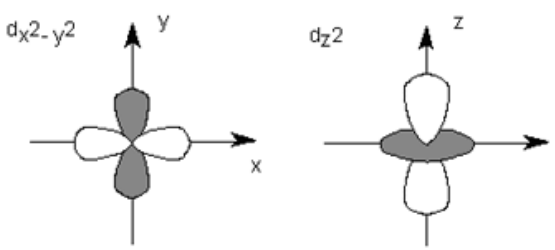


p orbitals



d orbitals





Principal Energy Level	Number of Sublevels	Type of Sublevel	Number of Orbitals (n^2)	Number of Electrons ($2n^2$)
n = 1	1	1s (1 orbital)	1	2
n = 2	2	2s (1 orbital), 2p (3 orbitals)	4	8
n = 3	3	3s (1 orbital), 3p (3 orbitals), 3d (5 orbitals)	9	18
n = 4	4	4s (1 orbital), 4p (3 orbitals), 4d (5 orbitals), 4f (7 orbitals)		