

Warm Up

Write electron configuration for the following atoms:

a) Co

b) F

Quantum Mechanical Model of an Atom

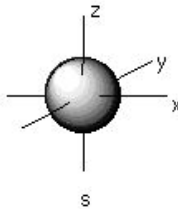
The quantum mechanical model determines the allowed energies an electron can have and how likely it is to find the electron in various locations around the nucleus.

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

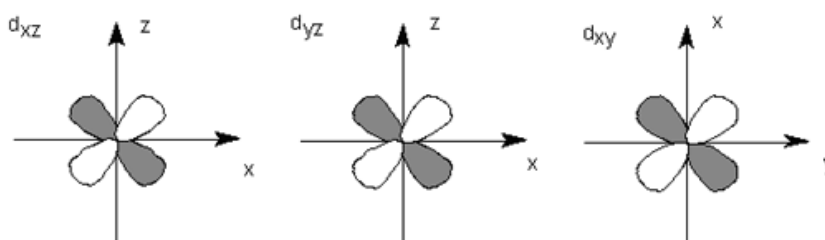
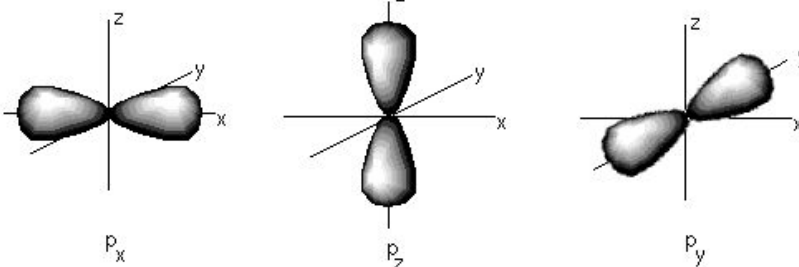
Principal quantum numbers (n) represent energy levels of electrons (i.e., $n = 1, 2, 3, 4$, etc.)

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

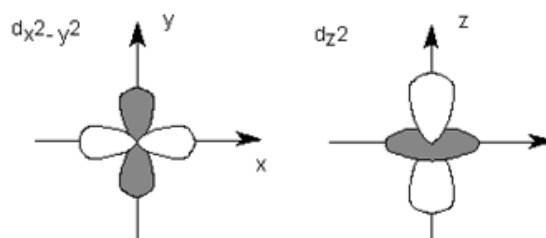
s orbital



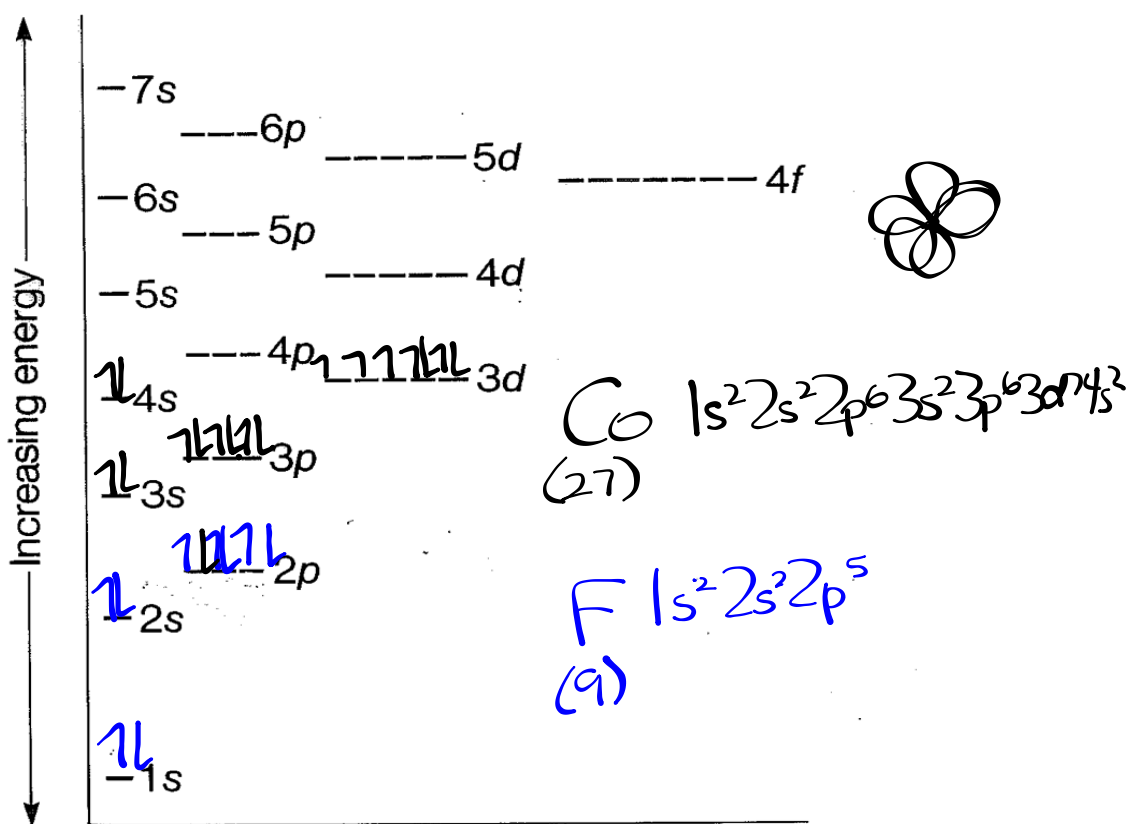
p orbitals

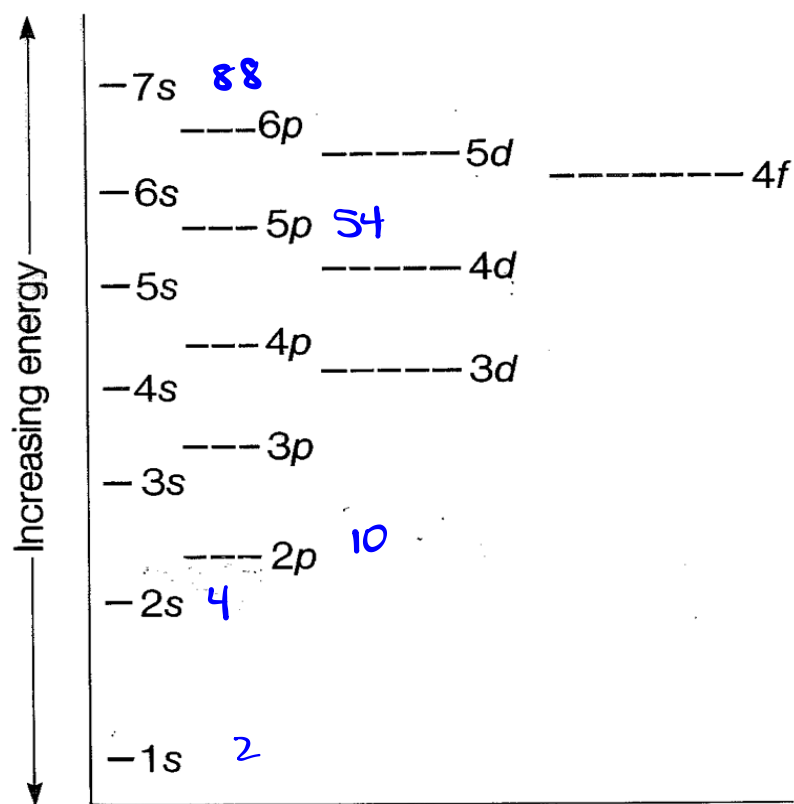


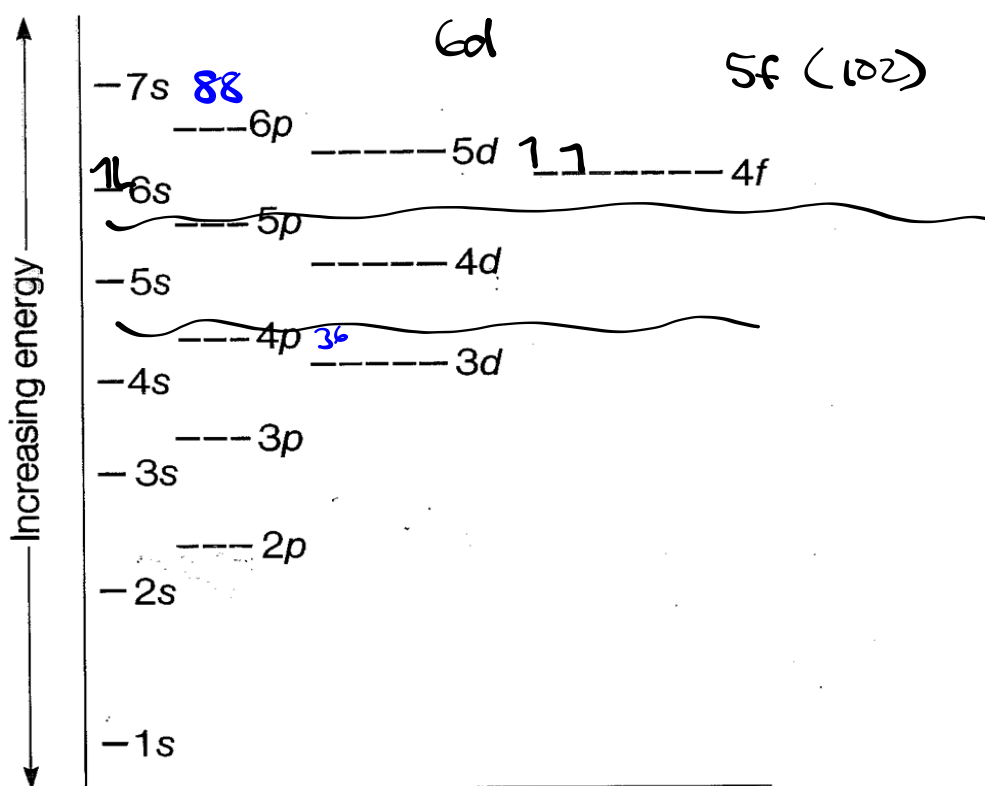
d orbitals



Aufbau Diagram



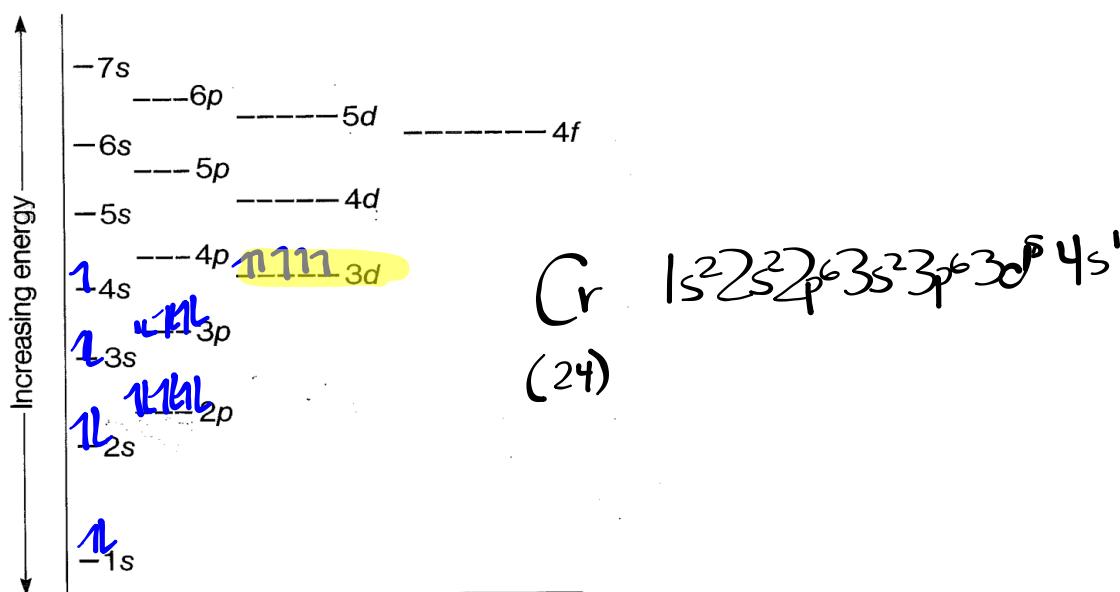




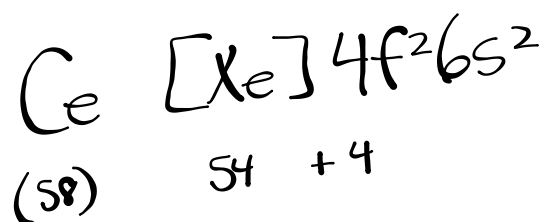
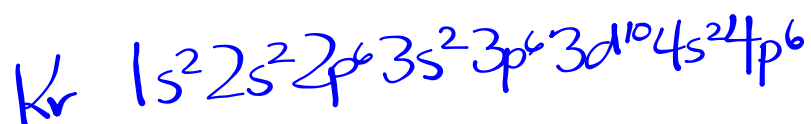
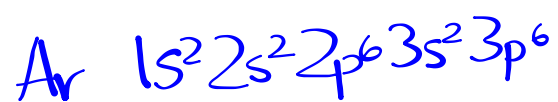
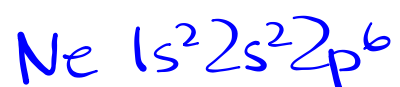
Exceptional Electron Configurations

Although half-filled sublevels are not as stable as filled sublevels, they are more stable than other configurations.

- more likely to occur at higher principal quantum numbers, because of the small energy differences between sublevels.



Abbreviated Electron Configurations



Homework

Section 5.1 & 5.2 p. 128 - 137

p. 132 #5-7

p. 135 #8-9

p. 136 #12-13

Test Review

Ch. 4 p. 122-123 #34, 39-41, 44-58, 60, 63-65,
71-73

Ch. 5 p. 149-150 #23-39, 50-53, 57, 68, 70, 71

Ch. 6 p. 181-182 #24, 26-35