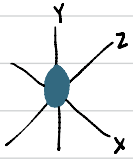
Quantum theory & Atomic orbitals

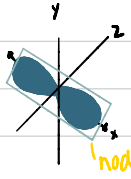
Atomic orbitals are denoted as: S, P, d & f → in OCHEM only S & P are used.
regions of space denoting the probability of electron location

Energy is specific
$H\Psi = E\Psi$
Ψ^2 = probability of finding an electron

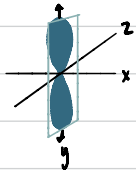
There is zero probability of finding an electron that passes through the nodal plane of the p orbital



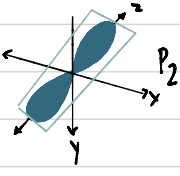
s orbital



p_x orbital
nodal plane



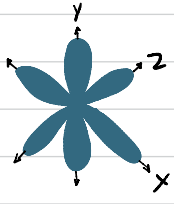
p_y orbital



p_z orbital

what does it look like when all P orbitals are full?

p-orbitals are oriented in 90° angles ⊥ (perpendicular) to each other



draw d orbitals: