

Numbers quantum :

quantum number : n (size of the Bohr radius).

quantum number : l (shape).

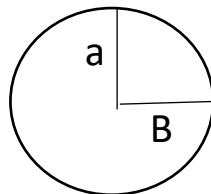
Quantum number magnetic : m_l (orientation).

Spin: m_s ($1/2, -1/2$).

All them define an orbital.

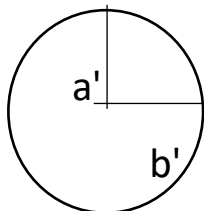
n (size and energy)	$l = 0, \dots, n-1$ $k = 1, \dots, n$	$m_l = -l, \dots, +l$
1	0 (s)	1 (0)
2	1 (p)	3 (-1, 0, 1)
3	2 (d)	5 (-2, -1, 0, 1, 2)
...	3 (f)	7 ...
... ..		

As for the form: $n=1$



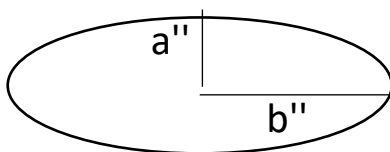
$$b/a = k/n = 1$$

$n=2$

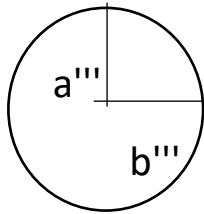


$$b'/a' = k/n = 1$$

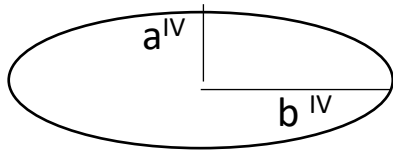
$$b''/a'' = k/n = 0.5$$



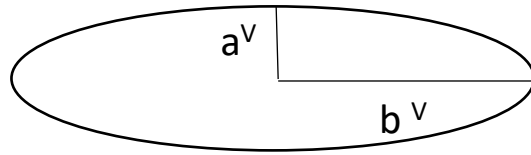
$$n=3$$



$$b'''/a''' = k/n = 1$$



$$b^{IV}/a^{IV} = k/n = 2/3$$



$$b^V/a^V = k/n = 1/3$$