

and finally---- EXPECTATION VALUES

How do we calculate the average value of a property? (In quantum mechanics it's called the expectation value). Well it's the weighted average of the property, + the probability of the wavefunction having it! Mathematically it looks like this:-

$$\langle S \rangle = \frac{\int \psi^* S \psi dV}{\int \psi^* \psi dV} \quad \left. \vphantom{\int \psi^* \psi dV} \right\} \text{normalization}$$

EXAMPLE:- Calculate $\langle z \rangle$ for the ground-state of the harmonic oscillator. Comment.