Electron

The particle-in-a-box ground state has quantum number $n = 0$.
The H_2 molecule does not have a pure rotational absorption spectrum.
The particle-in-a-box transition that absorbs the photon of longest wavelength is from the $n = 1$ level to the $n = 2$ level.
If f is an eigenfunction of the linear operator $\hat{A}$ with eigenvalue a, then f is an eigenfunction of $\hat{A}^2$ with eigenvalue a^2.
The number of peaks in the graph of the harmonic oscillator $|\psi_v|^2$ equals $v + 1$.

The product of a number and its complex conjugate is always a real number.
If we measure the property B when the system's state function is not an eigenfunction of $\hat{B}$, then we can get a result that is not an eigenvalue of $\hat{B}$.
The particle-in-a-box energy levels are equally spaced.
For a one-particle problem with $V = br^3$, where b is a positive constant, the stationary state wavefunctions have the form $\psi = f(r)Y_l^m(\theta, \phi)$.
$\int_{-\infty}^{\infty} \psi \, \mathrm{d}x = 1$ for a one-particle, one-dimensional system.

The wavefunction ψ must be a real function.
For the $n = 1$ particle-in-a-box stationary state, the probability of finding the particle in the left third of the box equals the probability of finding it in the middle third.
$\langle B \rangle = \int \hat{B}|\psi|^2 \, \mathrm{d}\tau$.
As the frequency of light increases, its wavelength decreases.
$5x$ is an eigenvalue of the position operator $\hat{x}$.

The spacing between adjacent vibrational levels of a diatomic molecule remains constant as the vibrational energy increases.
If $z = z^*$, then z must be a real number.
Since $\hat{L}^2 Y_l^m = l(l + 1)\hbar^2 Y_l^m$, it follows that $\hat{L}^2 = l(l + 1)\hbar^2$.
The ground-state energy of a particle in a box is zero.
If g is an eigenfunction of the linear operator $\hat{B}$, then cg is an eigenfunction of $\hat{B}$, where c is an arbitrary constant.

A probability density can never be negative.
The probability density for the particle-in-a-box stationary states is constant along the length of the box.
All harmonic oscillator wavefunctions with v an odd integer must have a node at the origin.
If f_1 and f_2 are eigenfunctions of $\hat{B}$, then $c_1 f_1 + c_2 f_2$ must be an eigenfunction of $\hat{B}$, where c_1 and c_2 are constants.
Every function of x, y, and z has the form $f(x)g(y)h(z)$.

The spacings between successive two-particle rigid rotor energy levels remain constant as J increases.
ψ must be an eigenfunction of each operator $\hat{B}$ that represents a physical property of the system.
The $v = 1$ harmonic oscillator wavefunction must be negative for $x < 0$.
The symbol e stands for the charge on an electron.
Increasing particle-in-a-box stationary-state energy corresponds to increasing number of nodes in the wave function.

If $\hat{A}$ and $\hat{B}$ do not commute, it is impossible for an eigenfunction of $\hat{A}$ to be also an eigenfunction of $\hat{B}$.
For harmonic oscillator wavefunctions, $\int_{-\infty}^{\infty} \psi_v^*(x)\psi_{v+1}(x)\,\mathrm{d}x = 0$.
The $\hat{L}^2$ eigenvalues are degenerate except for $l = 0$.
If the harmonic oscillator wavefunction ψ_v is an even function, then ψ_{v+1} is also an even function.
The degeneracy of the $J = 4$ two-particle rigid-rotor energy level is 7.

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