The Postulates

1. Each physical, measurable quantity, A, has a corresponding operator, $\hat{A}$, that satisfies the eigenvalue equation $\hat{A}\,\phi = a\phi$ and measuring that quantity yields the eigenvalues of $\hat{A}$.
2. Measurement of the observable A leaves the system in a state that is an eigenfunction of $\hat{A}$.
3. The state of a system is represented by a wave function Ψ which is continuous and differentiable and contains all the information regarding the system. The average value of any physical observable A is determined by $\langle A \rangle = \int_{all\ space} \Psi^* \hat{A}\, \Psi d\vec{r}$.
4. The time development of the wave function is determined by

$$i\hbar \frac{\partial \Psi(\vec{r},t)}{\partial t} = -\frac{\hbar^2}{2\mu}\nabla^2 \Psi(\vec{r},t) + V(\vec{r})\Psi(\vec{r},t)$$

where μ is the reduced mass.