

In most situations, the Schroedinger wave function must satisfy certain boundary conditions that are

1. $\psi(x,t)$ must be finite everywhere.
2. $\psi(x,t)$ must be single valued.
3. For finite potentials, $\psi(x,t)$ and $d\psi(x,t)/dx$ must be continuous.
4. $\psi(x,t)$ must vanish as $x \rightarrow \pm\infty$.