

Solution to the Reflective Homework

- 1) I disagree. The given wave function is continuous and smooth and can be written as a linear superposition of the stationary state wave functions for the system. It is a possible wave function.
- 2) I disagree. While the stationary state wave functions satisfy the time-independent Schroedinger equation, their linear superpositions with different energies will not satisfy the time-independent Schroedinger equation.
- 3) This statement is incorrect. The momentum operator in one dimension is $\hat{p} = -i\hbar d/dx$ and $d\hat{x}/dt = 0$.
- 4) This statement is correct.