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Midterm 2 Review Pretest

University of Colorado

Page **1** of 1

Please type your name in the form: Last, First:

Required.

NOTE!! Please type in your CU userid (that's the username you use to log in to CULearn. We do NOT want your password. It probably looks like your last name, perhaps with a few extra characters. Note that it is definitely NOT your numerical (9 digit) student ID!!

This script cannot "error check", you have to be sure you type it in correctly! Thanks

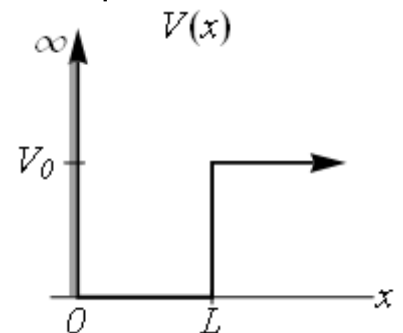
Please type your CU userid:

Required.

Consider a quantum mechanical system with the potential shown at right. The system is prepared so that at $t = 0$ it is in a state described by a wave function identical to that of the ground state of the infinite square well. That is,

$$\Psi(x, 0) = \sqrt{\frac{2}{L}} \sin\left(\frac{\pi x}{L}\right) \quad 0 < x < L$$

$$\Psi(x, 0) = 0 \quad x \leq 0, x \geq L$$



Q1:

a) Does the wave function associated with this state depend on time?

a) DOES the wave function associated with this state depend on time?

Required.

Select one...

b) If so, describe how you would write down its time dependence. If not, explain why not.

Required.

Q2:

a) Does the probability density associated with this state depend on time?

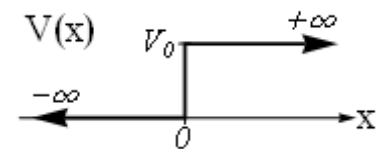
Required.

Select one...

b) If so, describe its time dependence. If not, explain why not.

Required.

Consider the graph of the potential energy for a one-dimensional system as shown at the right. $V(x) = 0$ for $x < 0$ and $V(x) = V_0$ for $x > 0$.



Q3:

a) How many boundary conditions are there for this system for a situation which describes particles which approach from the right?

Required.

Select one...

b) Describe in words the boundary conditions for this system for a situation which describes particles which approach from the right. If there are no boundary conditions (answer of zero in part a), explain why.

Required.

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Submit responses

Questions or Comments?

Contact the 123 tutorial pretest coordinator at uwttl123@u.washington.edu

