HW4: Shabani – QM1 Due Oct 28th

1. Show that E must exceed the minimum value of V(x) for every normalizable solution to the time-independent Schrodinger equation.

2. A particle in the infinite square well has the following stationary state using even mixture of ground state and first excited state marked by \psi_1 and \psi_2:

$$\Psi(x,0) = A[\psi_1(x) + \psi_2(x)]$$

(a) Normalize the above wavefunction.

(b) Find the time evolution at t = t0

(c) Compute < x >.

(d) Compute < p >.