PHYS 232 Assignment # 9 due:Wednesday May6, 2020 10 am

1. An electron moving along the x-axis is incident with energy from -∞ towards the potential barrier:
2. Use equation (7.10) to find the probability T(E) that the electron will be transmitted to the other side of the barrier. (20%)
3. Plot the barrier (using Excel or any other computer app) and obtain a numerical answer for T(E) for the case

and (20%)

1. An electron moving along the x-axis is incident with energy

E = U0 from -∞ towards the potential barrier:

* 1. Solve the Schroedinger equation and write down the wavefunction in the three regions and apply the continuity conditions. (20%)

* 1. Show that the electron will be reflected to the x < 0 region with 100% probability. (10%)
  2. Calculate the probability ratio P(x=L/2)/P(x=0). Since there is 100% probability that the electron will reach x = 0, this ratio gives the probability that the electron will reach x=L/2. What is the classical answer? (10%)