Physics 214: Introduction to Quantum Mechanics
Spring 2010

Problem Set 8

Due: Wed 7 April 2010

Reading:

Mon 3/29: Townsend Sec. 4.4.

Wed 3/31: Townsend Sec. 4.6.

Fri 4/2: Townsend Sec. 4.7.

Mon 4/5: Townsend Sec. 4.3.

Wed 4/7: Townsend Sec. 5.2.

Problems:

1. Discrete or continuous spectrum? Townsend Problem 4.2.

2. Constructing qualitative plots of the wavefunction I. French & Taylor Problem 3.15.


4. Which is the correct potential? Townsend Problem 4.5.

5. Semi-infinite square well and its relation to a finite square well. Townsend Problem 4.9. This problem illustrates a common trick: the odd wave functions of an even potential vanish at the origin. Thus, they satisfy the boundary conditions on $\psi(x)$ at $x = 0$ in the related problem in which the $x \leq 0$ portion of the potential is replaced by $V = \infty$.

6. Feedback. By Thursday of each week, please send me an email message to provide feedback on the class and on your reading. (My email address is mbschulz at brynmawr.edu).
For example: Which parts were easier or harder to understand? Do you have any questions that you would like to clarify or areas where you would like more practice in recitation section? Was there something that you found particularly interesting or uninteresting? Was the problem set of reasonable length and difficulty. The textbook we are using is brand new, so we are on the cutting edge. If you have any thoughts on how to improve the textbook for future students using future editions, please let me know and I will pass that information on to the author, John Townsend. The purpose of the feedback is to help you to reflect on your learning process and to provide me with brief but valuable information that will help to make this class the best possible experience for everyone.