Physics 4610, Quantum Mechanics   Name _____
Prof. Schroeder
Spring 2020

Problem Set 5
(due Friday, February 14, 4:00 pm)

1. Problem 3.19, page 85 (numerical simulation of a free Gaussian wavepacket). It's fine to show the results in multiple images, rather than combining them into a single figure as in the text.

2. Problem 3.23, page 88 (sketch final momentum-space probability distribution for Figure 3.7).

3. Problem 3.24, page 93 (measure and check wavelengths in Figure 3.10).

4. Problem 3.26, page 94 (derive formula for "measuring" the reflection probability).

5. Problem 3.29, page 94 (derive reflected probability for an abrupt step potential). You may assume the results of Problem 2.1.

6. Problem 3.31, page 97 (numerical tunneling calculations). The code actually starts at the top of page 90. Be sure that you understand the meaning of the constants `v0` and `kp` in that code!

7. Problem 3.33, page 97 (rough estimate of a tunneling probability).