Applied Quantum Mechanics

Homework #11, due Friday April 11, 2008

Reading: Levi, Exercises 8.5, 8.6

Problem 1: Levi, Problem 8.5

Problem 2: Levi, Problem 8.6
Note: You can find this in the text!

Problem 3: Levi, Problem 8.8
Hint: Use the first-order time dependent perturbation theory (Equ 8.25) and the probability is $|a_m|^2$

Problem 4: Levi, Problem 8.9
Hint: in part (b), you need to use the identity:

$$\delta(x) = \frac{1}{\pi} \lim_{\eta \to \infty} \frac{\sin^2(\eta x)}{\eta x^2}$$