

Quantum Mechanics Summer 2003- Homework Set 4

Due Friday 10-17-2003 at 5:00

Reading: Chapter 1 and 2

- 1.14
- 2.4
- 2.5
- 2.6 (Part (a) and (b) only)
- 2.13
- 2.17
- 2.36 Find the wavefunction as a function of time only.
- 3.38

Problem A1 Consider the position operator $\hat{X} = x$ and the momentum operator $\hat{P} = \frac{\hbar}{i} \frac{\partial}{\partial x}$. Show the following revolutionary relation $[\hat{X}, \hat{P}] = i\hbar$. Hint, allow the operators to operate on a test function f .