

Homework 3

Review class notes and Chapters 5, 6 and 7 from the book.
The homework is due in class on Thursday February 24th.

1. Problems 6.10 [10 points]

(2) For the $n=1$ state of a harmonic oscillator determine $\langle x \rangle$, $\langle x^2 \rangle$, $\langle p_x \rangle$, and $\langle p_x^2 \rangle$.
Based on your results show that Heisenberg Uncertainty Relationship is valid for this system. [20 points]

(4) Substitute the $n=2$ wavefunction of the harmonic oscillator into the Schrodinger's Equation to determine the energy of the $n=1$ state. [20 points]

(6) 7.16 [10 points]

(7) 7.21 [10 points]

(8) 7.22 [20 points]

(9) 7.29 [10 points]