

PHYS 451 – HOMEWORK # 3 – DUE TUESDAY, 10/17/2013

1. **P4.13 p.126.**
2. **P4.14 p.126.**
3. **P4.17 p.127.**
4. **P4.21 p.128.**

Key

Unless otherwise specified, questions and problems are from the course textbook:

Richard W. Robinett
QUANTUM MECHANICS (SECOND EDITION)
Oxford University Press (2006)
ISBN-13: 978-0198530978

P(Q)X.Y p.Z means “Problem (Question) P(Q)X.Y of Chapter X, page Z.”

Example: Problem P1.2 p.24 = Problem P1.2 of Chapter 1, page 24.

Quantum mechanics is the branch of physics that describes fundamental subatomic behavior. The basic principle of quantum mechanics is that there is an uncertainty in the location of a subatomic particle until it is observed. This explains why the Second Law of Thermodynamics is always true, and why everyone declines with old age. Quantum mechanics explains the discrete nature of small-scale interactions, wave-particle duality, the uncertainty principle, and quantum entanglement. Quantum mechanics Quantum mechanics, also known as quantum physics or quantum theory, is a theory of physics providing a mathematical description of the interaction of matter and energy. The theory was developed in 1925 by Werner Heisenberg.[1] Quantum mechanics describes the time evolution of physical systems via a mathematical structure called the wave function.Â 3.1 Quantum mechanics and classical physics. 3.2 Relativity and quantum mechanics. 3.3 Attempts at a unified field theory. 4 Philosophical implications.