

Physics 4410 - Quantum Mechanics II – Fall 2004  
Problem Set 1

Due September 1, 2004 at 11:00 AM in Duane G2B21

Reading assignment: Shankar Chapter 1. If you read it last semester, read it again.

1. Shankar 1.1.3
2. Which of the following meet the criteria for linear vector spaces? For those that do, give the dimension of the vector space.
  - a. The set of integers.
  - b. The set of real numbers.
  - c. The set of real functions  $f(x)$ .
  - d. The set of 3-dimensional spatial vectors, each of whose  $x$  component is restricted to be the negative of its  $y$  component.
  - e. The set of real numbers between -1 and 1, inclusive.
3. Shankar 1.3.1
4. Shankar 1.3.2
5. Shankar 1.6.2
6. Shankar 1.6.4
7. Shankar 1.6.5
8. Shankar 1.8.1
9. Shankar 1.8.7 (Note – you should first make sure you understand 1.8.5 and 1.8.6.)
10. Shankar 1.8.9