

Problem Set 2
P511—Quantum Mechanics, Fall 2008
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Due Tuesday, September 16

- 1.) Sakurai, problem 1.9
- 2.) Sakurai, problem 1.12
- 3.) Sakurai, problem 1.23
- 4.) The Hamiltonian for a four-state system is given by

$$H = (|1\rangle\langle 2| + |2\rangle\langle 1| + |2\rangle\langle 3| + |3\rangle\langle 2| + |4\rangle\langle 4|),$$

Find the eigenvalues and eigenkets for H . Express the eigenkets in terms of $|1\rangle, \dots, |4\rangle$.