IEOR 4701: Stochastic Models in Financial Engineering

Summer 2007, Professor Whitt

Homework Assignment 4: Wednesday, July 18, 2007

Due on Monday, July 23; to be discussed in Recitation on Sunday, July 22.

Even More Markov Chains

Read Sections 4.5.1 and 4.8 up to Example 4.33) in Ross.

Do the following exercises at the end of Chapter 4. Turn in all except for ones with answers in back:

41. (Answer in back)

42.

46.

47. (Answer in back)

49.

56. (Hint: Apply Section 4.5.1.)

57. (Hint: Apply Section 4.5.1 again.)

76.

We consider a graph in which the nodes are the 64 squares of the chess board.
Let an arc join nodes i and j if a knight can move from i to j in one move.
Recall that a knight moves two squares in one direction (horizontally or vertically)
and one square in another direction (horizontally or vertically),
not allowing both horizontal or both vertical.

We also use Remark (ii) in Section 4.4 about the relation between
the expected time to return to a state and the steady-state probability of being in that state,
plus the formula for the steady-state limiting probability π_i
toward the end of Example 4.32.