

MTH 7241: Fall 2009: Prof. C. King

Assignment 6

Due date: Wednesday, November 18.

Reading: Grinstead and Snell 12.2; Probability Notes Chapter 2.

Problems:

1. p. 490: #1, #2, #4.

2) A random walk is defined on the integers $\{0, 1, 2, 3, \dots\}$ with the following transition probabilities:

$$p_{00} = \frac{1}{2}, \quad p_{01} = \frac{1}{2}$$
$$p_{n,n+1} = p_{n,n-1} = \frac{1}{2} \quad n = 1, 2, \dots$$

Determine whether the walk is transient or persistent. [Hint: relate the walk to the standard symmetric walk on the integers. The standard symmetric walk is persistent, thus $f_{1,0} = 1$. By conditioning on the first step of the walk starting at 0, use this to compute $f_{0,0}$ for the walk on the half-line given above].