

Homework assignment 7 is due Friday March 19

1. Prove that two independent random walks on a two dimensional lattice will hit with probability one. Hint: What is the distance between the two walks.
2. Determine by simulation the escape probability for the 3-dimensional lattice.
3. What is the escape probability for a random walk starting at the root of a binary tree?
4. Consider a random walk on the positive half line, that is the integers $0,1,2,\dots$. At the origin always move right one step. At all other integers move right with probability $2/3$ and left with probability $1/3$. What is the escape probability?
5. Consider the graph shown below. Prove that the expected time of a random walk from u to v is $2m-1$ where m is the number of edges in the graph independent of which edges are actually in the subgraph to the left of u .

