

Programming a random walk

Gareth Tribello

July 24, 2017

In the exercise:

<http://gtribello.github.io/mathNET/gamblers-ruin-exercise.html>

you learnt how to write a program to generate a simple random walk in one dimension with absorbing boundary conditions. Now write a python notebook that allows you to perform a simple random walk in one dimension with absorbing boundary conditions. By running the program in your python notebook multiple times calculate estimates for the following:

1. The probability that the walk finishes at $X = 0$ together with error bars at the 90 % confidence limit on this estimate.
2. The probability mass function for the number of steps in the walk prior to absorption.

Now replace the absorbing boundary condition at $X = 0$ with a reflecting boundary condition at $X = 0$. Calculate the probability mass function for the number of steps in the walk prior to absorption for this modified chain.