

In the name of God

Department of Physics
Shahid Beheshti University

ADVANCED TOPICS IN STATISTICAL PHYSICS II

Exercise Set 3

(Date Due: 1393/01/20)

1. Determine the behaviour of Binomial probability distribution function for $N \rightarrow \infty$.
2. In a 1D random-walk, suppose that p_+ , p_- and p_0 are for probability of jumping forward, backward and staying in its place, respectively. Compute $\langle x \rangle_N$, $\langle (x - \langle x \rangle)^2 \rangle_N$ and probability distribution function.
3. Simulate 1D random-walk and plot $\langle x \rangle_N$ and $\langle (x - \langle x \rangle)^2 \rangle_N$ as a function of N for two cases mentioned in the previous question.

Good luck, Movahed
