

TMA4265 Stochastic Processes

Self study - 18.09.2015

Gambler's ruin

Section 4.5.1 in the book shows how the first-step analysis can be used to compute the probability that a gambler starting with i NOK, will reach N NOK before going broke. Go through the section and try to understand the derivations (you may use the attached notes).

Example:

John starts with 2NOK, and has probability $p = 0.6$ of winning a game.

- a) What is the probability that John obtains a fortune of $N = 4$ without going broke?
- b) What is the probability that John will become infinitely rich?
- c) If John instead started with 1NOK, what is the probability that he would go broke?

Branching processes

Go through section 4.7 and solve Problem 2 of the TMA4265 exam in autumn 2013:

http://www.math.ntnu.no/emner/TMA4265/2014h/tma4265_des_13.pdf