

Discussion 7

Fall 2014

Date: Wednesday, October 15, 2014

Problem 1. After attending an EE126 lecture, you went back home and started playing *Twitch Plays Pokemon*. Suddenly, you realized that you may be able to analyze *Twitch Plays Pokemon*.



Figure 1: A snapshot of 'Twitch Plays Pokemon' - 1

- (a) Find the expected number of moves until Red reaches the stairs in Figure 1.



Figure 2: A snapshot of 'Twitch Plays Pokemon' - 2

- (b) Find probability that Red reaches the stairs in the bottom right corner in Figure 2.

Problem 2. Bob rolls a fair die until the product of his last 2 rolls is a 12. Find the expected number of times Bob will roll the die.

Problem 3. Consider two independent Poisson Processes, A and B with rates $\lambda_A = 30$ and $\lambda_B = 15$ respectively.

- (a) Find the pmf of the number of arrivals from B before the first arrival from A.
- (b) In time 10 hours there are a total of 450 arrivals from both the processes. Find the probability that there were n arrivals from A in the first 4 hours.
- (c) Given that the number of arrivals from A before the first arrival from B is n , find the density of the time until the first arrival from B .