

Stochastics

Third homework (Deadline: 12 Okt. 12:15)

A miner gets lost in the mine. He is in a chamber with 5 doors. Door 1 leads to a tunnel to the exit after 2 hours of walking. Door 2 leads to a tunnel to Door 3 after 1 hours of walking. Door 4 leads to a tunnel to Door 5 after 3 hours of walking. The miner picks a door at random, goes through the tunnel, but whenever he gets back to the chamber, he forgets his previous choices, and picks one of the five doors at random again. Let X denote the total time it takes him to get to the exit. Calculate the generating function of X and then using the generating function calculate $\mathbf{E}X$!