

DATA 605: Assignment 10

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Problem: Gambler's Ruin

Smith is in jail and has 1 dollar; he can get out on bail if he has 8 dollars. A guard agrees to make a series of bets with him. If Smith bets A dollars, he wins A dollars with probability $.4$ and loses A dollars with probability $.6$.

Find the probability that he wins 8 dollars before losing all of his money if

Part A: Timid strategy

He bets 1 dollar each time.

Answer

Part B: Bold strategy

He bets, each time, as much as possible but not more than necessary to bring his fortune up to 8 dollars.

Answer

Part C: Better strategy

Which strategy gives Smith the better chance of getting out of jail?

Answer