HW10

Zachary Palmore

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Overview

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 probabil ity .4 and loses A dollars with probability .6.

Exercises

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

(a) he bets 1 dollar each time (timid strategy).

```
p <- 0.4
q <- 0.6
N <- 8
timidP <- signif(((q/p)^1 - 1 ) / ((q/p)^8 - 1 ), 3)
timidP
```

```
## [1] 0.0203
```

(b) he bets, each time, as much as possible but not more than necessary to bring his fortune up to 8 dollars (bold strategy).

```
boldP <- p^3
boldP
```

```
## [1] 0.064
```

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

The bold strategy give Smith the best chance of getting out of jail with a probability of 0.064 compared to 0.0203 with the timid strategy. However, both chances are terrible given the circumstances, should not be recommended.