
Puzzle #7: A Series of Unlikely Events

Tina D. Monroe had a day of unusual events. Can you determine the probability of each event? Assume that all coins are fair, all dice are six-sided, and anything selected from a set is chosen by a uniform distribution.

- ____ She played the Monty Hall game, and used the correct strategy. She lost!
- ____ She selected a real number on the interval $[0, 10]$. It was irrational!
- ____ She flipped a coin five times. She got the same result every time!
- ____ She rolled two dice. Their product was twelve!
- ____ She picked a current US senator. They were born in 1952!
- ____ She flipped nine coins. The number of tails minus the number of heads was odd!
- ____ She rolled two dice. The sum was less than 4!
- ____ She picked two Friends characters. They were siblings!
- ____ She pulled three raffle tickets out of a hat. They were in increasing order!
- ____ She flipped a coin eight times. The result was palindromic!
- ____ She picked a US state. Its name contained a space!
- ____ She rolled two dice. The sum was 11!
- ____ She picked two dwarves. They were Grumpy and Dopey!