

# ICECA

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## Hitting a prime in 2.43 dice rolls (on average)

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What is the number of rolls of fair six-sided dice until the first time the total sum of all rolls is a prime? We compute the expectation and the variance of this random variable up to an additive error of less than  $10^{-4}$ . This is a solution to a puzzle suggested by DasGupta in the Bulletin of the Institute of Mathematical Statistics, where the published solution is incomplete. The proof is simple, combining a basic dynamic programming algorithm with a quick Matlab computation and basic facts about the distribution of primes. We will mention the interesting follow-up works.