

Basic Combinatorics and Probability Addition

Kason Ancelin and Sanjit Dandapanthula

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Exercise 1. *Suppose that birthdays are uniformly distributed between all days. a) Find the probability that in a group of n people, two share the same birthday day. b) Find n so that this probability is ≤ 50*

Exercise 2. *We pick a 5-digit positive integer uniformly at random. What's the probability that all 5 digits are distinct?*

Exercise 3. Calculate the probability of randomly rearranging tiles with the letters of *FORMULA* and getting a word starting with a vowel.

Exercise 4. Calculate the probability of rolling a six-sided die three times and getting a sum of three outcomes equal to 10.

Exercise 5. We pick a nonnegative integer n strictly less than 1,000,000, uniformly at random. What's the probability that n is divisible by 3 and doesn't contain the digit 3?