

MATH 133 PROBLEM SET 6

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ABSTRACT. Due Monday, April 10

Question 1. Suppose a pair of dice is thrown 10 times. What is the probability that the greatest total is smaller than 10?

Question 2. Suppose a pair of dice is thrown. What are the possible values of the product of the two pip counts, and what are the probability of those values occurring?

Question 3. See Question 2. What is the *expectation* of the product of pip counts?

Question 4. See Question 2, but this time compute the *variance* and the *standard deviation* of the product of pip counts.

Question 5. See Question 2. Suppose the dice are thrown 10 times. What is the probability that all the products obtained are *even*?

Question 6. Consider all N digit integers (in base 10). How many of them have no occurrence of the digit 9.?

Key words and phrases. discrete, mathematics, sets, logic, combinatorics, graphs.