



MITx: 6.041x Introduction to Probability - The Science of Uncertainty



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**Lec. 1: Probability
models and
axioms**

Exercises 1 due Feb
10, 2016 at 23:59 UTC

**Mathematical
background: Sets;
sequences, limits,
and series;
(un)countable sets.**

Solved problems

Problem Set 1

Problem Set 1 due Feb
10, 2016 at 23:59 UTC

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EXERCISE: DISCRETE PROBABILITY CALCULATIONS

(2/2 points)

Consider the same model of two rolls of a tetrahedral die, with all 16 outcomes equally likely. Find the probability of the following events:

a) The value in the first roll is strictly larger than the value in the second roll.



Answer: 0.375

b) The sum of the values obtained in the two rolls is an even number.



Answer: 0.5

Answer:

a) The event of interest is

$\{(2, 1), (3, 1), (4, 1), (3, 2), (4, 2), (4, 3)\}$. It consists of 6 elements (outcomes), each of which has probability $1/16$, for an overall probability of $6/16 = 3/8$.

b) The event of interest is

$\{(1, 1), (2, 2), (3, 3), (4, 4), (1, 3), (3, 1), (2, 4), (4, 2)\}$. It consists of 8 elements (outcomes), each of which has probability $1/16$, for an overall probability of $8/16 = 1/2$.

You have used 1 of 2 submissions

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