



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



Bookmarks

- ▶ Unit 0: Overview
- ▶ Entrance Survey
- ▶ Unit 1: Probability models and axioms
- ▶ Unit 2: Conditioning and independence
- ▶ Unit 3: Counting
- ▼ **Unit 4: Discrete random variables**

Unit overview

Lec. 5: Probability mass functions and expectations

Exercises 5 due Mar 02, 2016 at 23:59 UTC

Lec. 6: Variance; Conditioning on an event; Multiple r.v.'s

Exercises 6 due Mar 02, 2016 at 23:59 UTC

Lec. 7: Conditioning on a random variable; Independence of r.v.'s

Unit 4: Discrete random variables > Lec. 5: Probability mass functions and expectations > Lec 5 Probability mass functions and expectations vertical



Bookmark

Exercise: Random variables

(2/2 points)

 Let \mathbf{X} be a random variable associated with some probabilistic experiment, and let x be a number.

 a) Is it always true that $\mathbf{X} + x$ is a random variable?

Yes ▾



Answer: Yes

 b) Is it always true that $\mathbf{X} - x = 0$?

No ▾



Answer: No

Answer:

 a) Yes. Think of a concrete example. Let \mathbf{X} be the height of a randomly selected student and let $x = 10$. We are dealing with the random variable $\mathbf{X} + 10$. It is the random variable that takes the value $a + 10$, whenever the random variable \mathbf{X} takes the value a .

 b) No. Think of the same concrete example as before. The object $\mathbf{X} - 10$, where \mathbf{X} is the height of a randomly selected student, has no reason to be equal to 0. (We often use x to denote the realized value of \mathbf{X} . But the problem statement never said that the number x considered here had any relation to the realized value of \mathbf{X} .)

You have used 1 of 1 submissions

Exercises 7 due Mar
02, 2016 at 23:59 UTC

Solved problems

**Additional
theoretical
material**

Problem Set 4

Problem Set 4 due Mar
02, 2016 at 23:59 UTC

Unit summary

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