



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 5: Continuous random variables

Unit overview

Lec. 8: Probability density functions

Exercises 8 due Mar 16, 2016 at 23:59 UTC

Lec. 9: Conditioning on an event; Multiple r.v.'s

Exercises 9 due Mar 16, 2016 at 23:59 UTC

Unit 5: Continuous random variables > Lec. 10: Conditioning on a random variable; Independence; Bayes' rule > Lec 10 Conditioning on a random variable Independence Bayes rule vertical10



Bookmark

Exercise: Inference of the bias of a coin

(1/1 point)

The random variable K is geometric with a parameter which is itself a uniform random variable Q on $[0, 1]$. Find the value $f_{Q|K}(0.5 | 1)$ of the conditional PDF of Q , given that $K = 1$. *Hint:* Use the result in the last segment.

1



Answer: 1

Answer:

We identify Q with the variable Y in the last segment. The information that $K = 1$ is the information that the first coin flip resulted in Heads, which is the same as the information that $K = 1$ in the last segment. Therefore, the conditional PDF of Q is $2q$, which for $q = 0.5$ evaluates to 1.

You have used 1 of 2 submissions

**Lec. 10:
Conditioning on a
random variable;
Independence;
Bayes' rule**

Exercises 10 due Mar
16, 2016 at 23:59 UTC

Standard normal
table

Solved problems

Problem Set 5

Problem Set 5 due Mar
16, 2016 at 23:59 UTC

Unit summary

© All Rights Reserved



© edX Inc. All rights reserved except where noted. EdX, Open edX and the edX and Open EdX logos are registered trademarks or trademarks of edX Inc.

POWERED BY
OPENedX

