



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



Bookmarks

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- ▶ Unit 1: Probability models and axioms
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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. 9: Conditioning on an event; Multiple r.v.'s > Lec 9 Conditioning on an event Multiple r v s vertical6



Bookmark

Exercise: Finding a marginal PDF

(1/1 point)

The random variables X and Y are described by a uniform joint PDF of the form $f_{X,Y}(x,y) = 3$ on the set $\{(x,y) \mid 0 \leq x \leq 1, 0 \leq y \leq 1, y \leq x^2\}$.

Then, $f_X(0.5) =$ 

Answer: 0.75

Answer:

For any $x \in [0, 1]$, and using also the fact that the PDF is zero outside the specified set of x - y pairs, we have

$$f_X(x) = \int_{-\infty}^{\infty} f_{X,Y}(x,y) dy = \int_0^{x^2} 3 dy = 3x^2. \text{ Therefore, } f_X(0.5) = 3/4.$$

You have used 2 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

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