



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
- ▶ Exam 1
- ▼ Unit 5:
Continuous
random
variables

Unit overview

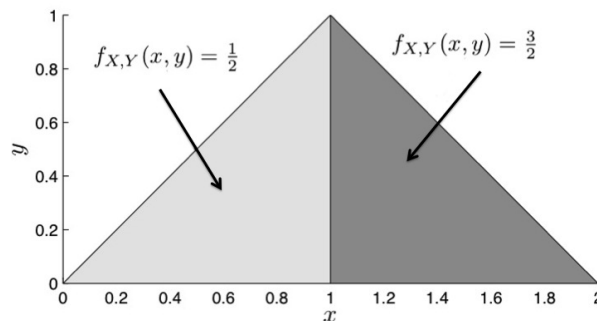
Lec. 8: Probability
density functionsExercises 8 due Mar
18, 2016 at 23:59 UTCLec. 9:
Conditioning on an
event; Multiple
r.v.'sUnit 5: Continuous random variables > Problem Set 5 > Problem 5 Vertical: A joint
PDF on a triangular region

Bookmark

Problem 5: A joint PDF on a triangular region

(7/7 points)

This figure below describes the joint PDF of the random variables \mathbf{X} and \mathbf{Y} . These random variables take values in $[0, 2]$ and $[0, 1]$, respectively. At $\mathbf{x} = 1$, the value of the joint PDF is $\mathbf{1/2}$.



1. Are \mathbf{X} and \mathbf{Y} independent?



Yes



No



2. Find $\mathbf{f_X(x)}$. Express your answers in terms of \mathbf{x} using standard notation .

If $\mathbf{0 < x < 1}$,

$\mathbf{f_X(x) =}$



If $\mathbf{1 < x < 2}$,

Exercises 9 due Mar
18, 2016 at 23:59 UTC

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

Exercises 10 due Mar
18, 2016 at 23:59 UTC

**Standard normal
table**

Solved problems

Problem Set 5

Problem Set 5 due Mar
18, 2016 at 23:59 UTC

Unit summary

- Unit 6: Further
topics on
random
variables

$$f_X(x) = 3 - 3x/2$$



3. Find $f_{Y|X}(y | 0.5)$.

If $0 < y < 1/2$,

$$f_{Y|X}(y | 0.5) = 2$$



4. Find $f_{X|Y}(x | 0.5)$.

If $1/2 < x < 1$,

$$f_{X|Y}(x | 0.5) = 1/2$$



If $1 < x < 3/2$,

$$f_{X|Y}(x | 0.5) = 3/2$$



5. Let $R = XY$ and let A be the event $\{X < 0.5\}$. Evaluate $\mathbf{E}[R | A]$.

$$\mathbf{E}[R | A] = 1/16$$



You have used 3 of 3 submissions

DISCUSSION

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