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 UT

Lec. 9: Conditioning on an event; Multiple r.v.'s
Exercises 9 due Mar 16, 2016 at 23:59 UT

Bookmark

Exercise: Piecewise constant PDF

(2/2 points)

Consider a piecewise constant PDF of the form

$$f_X(x) = \begin{cases} 2c, & \text{if } 0 \le x \le 1, \\ c, & \text{if } 1 < x \le 3, \\ 0, & \text{otherwise.} \end{cases}$$

Find the following values.

a) $c =$ 1/4 ✔ **Answer:** 0.25

b) $\mathbf{P}(1/2 \le X \le 3/2) =$ 3/8 ✔

Answer: 0.375

Answer:
a) The total area under the PDF is the sum of the areas of two rectangles and is equal to $(2c) \cdot 1 + c \cdot 2 = 4c$. Therefore, $c = 1/4$.

b) The total area under the PDF over the interval of interest is the sum of the areas of two smaller rectangles and is equal to $(2c) \cdot (1/2) + c \cdot (1/2) = c \cdot (3/2) = 3/8$.

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 UT

Standard normal table

Solved problems

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

Unit summary