



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



Bookmarks

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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 vertical3



Bookmark

Exercise: A mixed random variable

(1/1 point)

A lightbulb is installed. With probability $\frac{1}{3}$, it burns out immediately when it is first installed. With probability $\frac{2}{3}$, it burns out after an amount of time that is uniformly distributed on $[0, 3]$. The expected value of the time until the lightbulb burns out is

1



Answer: 1

Answer:

The expected value of a uniform on $[0, 3]$ is $\frac{3}{2}$. Using the definition of expectation of mixed random variables, the expected value is

$$\frac{1}{3} \cdot 0 + \frac{2}{3} \cdot \frac{3}{2} = 1.$$

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

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