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

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 vertical

🔖 **Bookmark**

Exercise: A conditional PDF
(1/1 point)

Suppose that X has a PDF of the form

$$f_X(x) = \begin{cases} 1/x^2, & \text{if } x \geq 1, \\ 0, & \text{otherwise.} \end{cases}$$

For any $x > 2$, the conditional PDF of X, given the event $X > 2$ is

| 2/x^2 | ✔ **Answer:** 2/(x^2) |

(Your answer should be an algebraic function of x, in standard notation .)

> Answer:
> The conditional PDF will be a scaled version of the unconditional, of
> the form $\frac{f_X(x)}{\mathbf{P}(X>2)}$. Now,
> $$\mathbf{P}(X > 2) = \int_2^\infty \frac{1}{x^2}\,dx = -\frac{1}{x}\Big|_2^\infty = 1/2,$$ and so the answer is
> $2/x^2$.

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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