3. Exercise: A conditional PDF

Exercises due Mar 13, 2020 05:29 IST *Completed*

Exercise: A conditional PDF

1/1 point (graded)

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.)

STANDARD NOTATION

Solution:

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

Submit You have used 2 of 3 attempts

Answers are displayed within the problem

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Topic: Unit 5: Continuous random variables:Lec. 9: Conditioning on an event; Multiple r.v.'s / 3. Exercise: A conditional PDF

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display bug in solution
I think there is the same display bug for the limits of the definite integral as others have noted before.
5 new 8

Explanation of how to solve the calculation on the rhs of P(X>2) = ?
I've gotten 100% in the course until now but I am completely lost when it comes to this integration stuff. ...
11

Unsure how to get the denominator, please help
4