3. Exercise: A conditional PDF
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,

$$\mathbf{P}(X > 2) = \int_2^\infty \frac{1}{x^2}\,dx = -\frac{1}{x}\Big|_2^\infty = 1/2,$$ and so the answer is $2/x^2$.

提交　You have used 2 of 3 attempts

ⓘ　Answers are displayed within the problem

讨论

显示讨论

Topic: Unit 5 / Lec. 9 / 3. Exercise: A conditional PDF

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