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15. Exercise: Finding a marginal PDF

Exercises due Mar 13, 2020 05:29 IST Completed

Exercise: Finding a marginal PDF

1/1 point (graded)

The random variables X and Y are described by a uniform joint PDF of the form $f_{X,Y}\left(x,y\right)=3$ on the set $\left\{\left.(x,y)\mid 0\leq x\leq 1,\; 0\leq y\leq 1,\; y\leq x^2\right.\right\}$.

Then,
$$f_X\left(0.5
ight)= oxed{0.75}$$

✓ Answer: 0.75

Solution:

For any $x\in[0,1]$, and using also the fact that the PDF is zero outside the specified set of x- y pairs, we have $f_X(x)=\int_{-\infty}^\infty f_{X,Y}\left(x,y\right)\,dy=\int_0^{x^2}3\,dy=3x^2.$ Therefore, $f_X\left(0.5\right)=3/4.$

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You have used 2 of 3 attempts

1 Answers are displayed within the problem

Discussion

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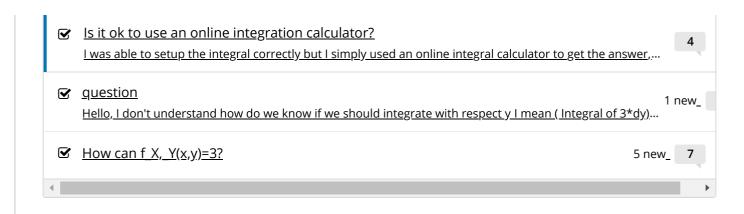
Topic: Unit 5: Continuous random variables:Lec. 9: Conditioning on an event; Multiple r.v.'s / 15. Exercise: Finding a marginal PDF

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Question about intuitive meaning

I got the answer right by just following the math as presented in the video, but I'm having trouble interpresented in the video, but I'm having trouble interpreted in the video in the vi



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