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9. Exercise: Definition of independence

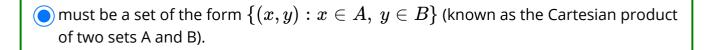
Exercises due Mar 13, 2020 05:29 IST Completed

Exercise: Definition of independence

1/1 point (graded)

Suppose that X and Y are independent, with a joint PDF that is uniform on a certain set S: $f_{X,Y}\left(x,y\right)$ is constant on S, and zero otherwise. The set S

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Solution:

Let A be the set of all x on which $f_X(x)$ is positive and let B be the set of all y on which $f_Y(y)$ is positive. Then, the set S, on which $f_{X,Y}(x,y) = f_X(x) f_Y(y) > 0$, will be the Cartesian product of A with B; it is not necessarily a square, but it cannot be an arbitrary set.

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You have used 2 of 2 attempts

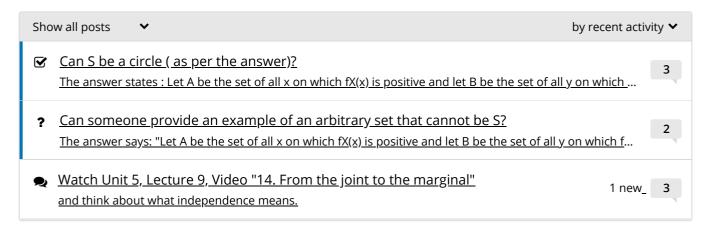
1 Answers are displayed within the problem



Discussion

Hide Discussion

Topic: Unit 5: Continuous random variables:Lec. 10: Conditioning on a random variable; Independence; Bayes' rule / 9. Exercise: Definition of independence



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