

15. Exercise: Finding a marginal PDF

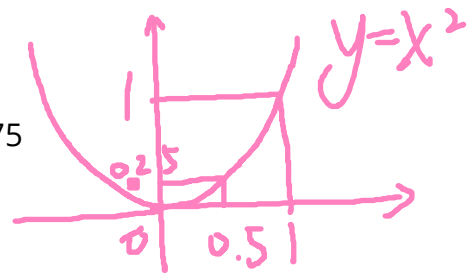
Exercise: Finding a marginal PDF

1/1 point (graded)

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

Then, $f_X(0.5) =$

✓ 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 $f_X(x) = \int_{-\infty}^{\infty} f_{X,Y}(x,y) dy = \int_0^{x^2} 3 dy = 3x^2$. Therefore, $f_X(0.5) = 3/4$.

提交

You have used 3 of 3 attempts

❗ Answers are displayed within the problem

讨论

显示讨论

Topic: Unit 5 / Lec. 9 / 15. Exercise: Finding a marginal PDF

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