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Marginal Distributions: Continuous Example - Quiz

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Question 1

1/1 point (graded)

Let's return to the continuous example that we used earlier in this lecture,

$$f_{XY}(x, y) = \begin{cases} \frac{xy}{9}, & 0 < y < 2 \text{ and } 0 < x < 3 \\ 0, & \text{otherwise} \end{cases}$$


Which of the following represents the marginal PDF of X?

☒ $f_x(x) = \int_0^2 \frac{xy}{9} dy$ ✓


☐ $f_x(x) = \int_0^3 \frac{xy}{9} dy$

☐ $f_x(x) = \int_0^2 \frac{xy}{9} dx$

Joint, Marginal, and Conditional Distributions

Finger Exercises due Oct 24, 2016
at 05:00 IST 

Functions of Random Variables

Finger Exercises due Oct 24, 2016
at 05:00 IST 

Module 4: Homework

Homework due Oct 17, 2016 at
05:00 IST 

- ▶ Module 5: Moments of a Random Variable, Applications to Auctions, & Intro to Regression
- ▶ Exit Survey

☐ $f_x x = \int_0^3 \frac{xy}{9} dx$

Explanation

The marginal PDF of X is given by integrating over the joint PDF over the support of Y. A gives the correct integral, where the joint PDF is integrated with respect to Y over the support of Y, where Y is between 0 and 1, or $f_x x = \int_0^1 \frac{xy}{9} dy$

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You have used 1 of 2 attempts

✓ Correct (1/1 point)

Question 2

1/1 point (graded)

Using the same example as above, what is the value of the marginal PDF for $X = 1$?

Please round your answer to two decimal places (e.g. if your answer is 0.181, you would to 0.18 and if it is 0.186, you would round to 0.19) .

0.22

✓ Answer: 0.22

0.22

Explanation

To calculate the value of the marginal PDF for $X = 1$, solve the integral that we set up in the previous question.

$$f_X(x) = \int_0^2 \frac{xy}{9} dy$$

$$f_X(1) = \frac{y^2}{18} \bigg|_{y=0}^{y=2}$$

$$f_X(1) = \frac{2^2}{18} - \frac{0^2}{18} = \frac{2}{9} = 0.22$$

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✓ Correct (1/1 point)

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