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More on Joint PDFs - Quiz

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Question 1

1/1 point (graded)

Suppose that you have the following joint PDF:

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

What is the probability that x is greater than 2 and y is greater than 1?

Note that this is different from the previous question. Please round answers to the second decimal place (e.g. if your answer was 0.7911, you would round to 0.79, and if it is 0.7981, you would round to 0.80)

| 0.42 |

✔ **Answer:** 0.42

0.42

Explanation

To answer this question, set up the relevant double integral over the relevant support, that is, with y ranging from 1 to 2 and x ranging from 2 to 3.

$$\int_1^2 \int_2^3 \frac{1}{9} xy \, dx \, dy$$

$$\int_1^2 \frac{x^2 y}{18} \Big|_{x=2}^{x=3} \, dy$$

$$\int_1^2 \frac{5}{18} y \Big|_{y=1}^{y=2} \, dy = \frac{5}{18} = 0.28$$

Update: the last part of this solution is incorrect. y should be integrated to y^2/2, which results in a final answer of 5/12.

Submit   You have used 1 of 2 attempts

✔   Correct (1/1 point)

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