



<u>Course</u> > <u>Unit 5:</u> ... > <u>Lec. 8:</u> ... > 5. Exer...

5. Exercise: Piecewise constant PDF

Exercises due Mar 13, 2020 05:29 IST Completed

Exercise: Piecewise constant PDF

2/2 points (graded)

Consider a piecewise constant PDF of the form

$$f_{X}\left(x
ight) = \left\{egin{array}{ll} 2c, & ext{if } 0 \leq x \leq 1, \ c, & ext{if } 1 < x \leq 3, \ 0, & ext{otherwise.} \end{array}
ight.$$

Find the following values.

a)
$$c = \boxed{1/4}$$
 \checkmark Answer: 0.25

b)
$${f P}(1/2 \le X \le 3/2) = {f 3/8}$$
 \checkmark Answer: 0.375

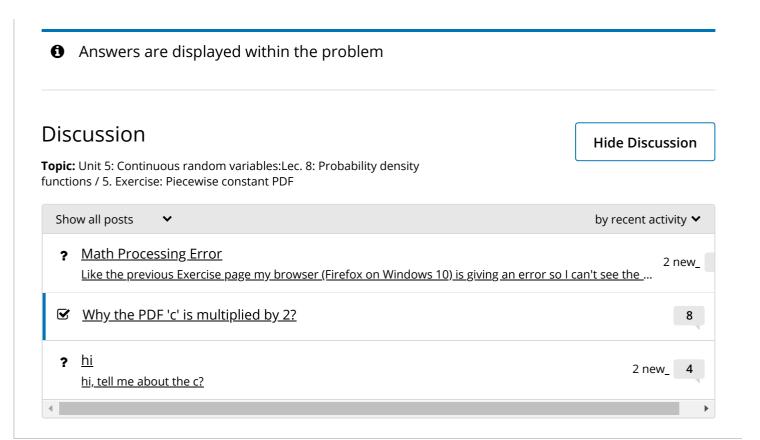
Solution:

- a) The total area under the PDF is the sum of the areas of two rectangles and is equal to $(2c)\cdot 1+c\cdot 2=4c$. Therefore, c=1/4.
- b) The total area under the PDF over the interval of interest is the sum of the areas of two smaller rectangles and is equal to $(2c) \cdot (1/2) + c \cdot (1/2) = c \cdot (3/2) = 3/8$.

Submit

You have used 2 of 3 attempts





© All Rights Reserved

