10. Exercise: A mixed random variable

Exercises due Mar 13, 2020 05:29 IST *Completed*

Exercise: A mixed random variable

1/1 point (graded)

A lightbulb is installed. With probability $1/3$, it burns out immediately when it is first installed. With probability $2/3$, it burns out after an amount of time that is uniformly distributed on $[0, 3]$. The expected value of the time until the lightbulb burns out is

1 ✔ **Answer:** 1

Solution:

The expected value of a uniform on $[0, 3]$ is $3/2$. Using the definition of expectation of mixed random variables, the expected value is $\frac{1}{3} \cdot 0 + \frac{2}{3} \cdot \frac{3}{2} = 1$.

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Answers are displayed within the problem

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@ Staff,Please explain

How the expected value is 0 of the discrete? Does that mean that this rv takes on value 0, as it burns out

? E[Lightbulb burns out immediately] 2 new

Hi, I computed well **E[*Lightbulb burns out after an amount of time U[0,3]*]**, however, looking at th...

? expected value of a uniform 5

How did we calculate the expected value of uniform is [edited to remove answer - staff] in the answer? I ...

? What does uniform here means? 4

When we say uniform, are we talking about calculating the probability using the uniform formula that w...

how to understand 'uniformly' is a key point 2

seems here the meaning of 'uniformly' is a little different with what showed in lecture video, can someo...