Principles of Probability

Started on	Monday, 1 May 2023, 7:30 PM
State	Finished
Completed on	Monday, 1 May 2023, 7:46 PM
Time taken	16 mins 49 secs
Grade	**10.00** out of 10.00 (**100%**)

Question 1

Complete

Mark 5.00 out of 5.00

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A random variable X has the following pdf, where $k > 0$

$$f_X(x) = \begin{cases} 0 & x \leq 1 \\ k(x-1) & 1 \leq x < 2 \\ k(3-x) & 2 \leq x < 3 \\ 0 & x \geq 3 \end{cases}$$

a) What is the value of $k > 0$?

> 1

b) What is the probability $P(1 \leq X \leq 2)$

Note: Type the answer as fractional a/b in simplest form

> 1/2

Question 2

Complete

Mark 5.00 out of 5.00

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Bob claims that he can model his experiment study of a process by the following CDF

$$F_X(x) = \begin{cases} 0 & \text{for } -\infty < x < 1 \\ B(1 - e^{-(x-1)}) & \text{for } 1 \leq x < \infty \end{cases}$$

a) For what value of B is the function a valid CDF?

> 1

b) With the above value of B, what is $P(1 < X \leq 3)$

Note: **Write the answer to two decimal places**

> 0.86

FINISH REVIEW