13. Exercise: Erlang r.v.'s

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

Exercise: Erlang r.v.'s

1/1 point (graded)

Let X and Y be independent Erlang random variables with common parameter λ and of order m and n, respectively. Is the random variable $X+Y$ Erlang? If yes, enter below its order in terms of m and n using standard notation. If not, enter 0.

m+n ✔ **Answer:** m+n

STANDARD NOTATION

Solution:

The random variable X can be viewed as the sum of m i.i.d. exponential random variables. Similarly, Y can be viewed as the sum of n i.i.d. exponential random variables. Furthermore, since X and Y are independent, we take these two collections of random variables to be independent. Thus, $X+Y$ can be interpreted as the sum of $m+n$ i.i.d. exponentials, and is Erlang of order $m+n$.

Submit You have used 1 of 3 attempts

Answers are displayed within the problem

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