8. Poisson fun

Problem 8. Poisson fun

2/2 points (graded)

Based on your understanding of the Poisson process, determine the numerical values of a and b in the following expression.

$$\int_t^\infty \frac{\lambda^6 \tau^5 e^{-\lambda\tau}}{5!} \, d\tau = \sum_{k=a}^b \frac{(\lambda t)^k e^{-\lambda t}}{k!}.$$

<table>
<tr><td>t</td><td>6 arrival</td><td>t</td><td>0~5 arrival</td></tr>
</table>

$a = $ | 0 | ✔ Answer: 0

$b = $ | 5 | ✔ Answer: 5

Solution:

The left-hand side is the probability that an Erlang random variable of order 6 and rate λ is larger than t. In the language of Poisson processes, this is the probability that there were at most 5 arrivals during the interval $(0, t]$ (recall that an nth order Erlang random variable corresponds to the nth arrival time in a Poisson process. Hence, $a = 0$, and $b = 5$.

提交   你已经尝试了2次（总共可以尝试3次）

ℹ Answers are displayed within the problem

讨论

显示讨论

主题: Unit 9 / Problem Set / 8. Poisson fun