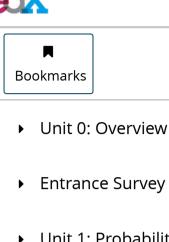


MITx: 6.041x Introduction to Probability - The Science of Uncertainty



Unit 9: Bernoulli and Poisson processes > Lec. 23: More on the Poisson process > Lec 23 More on the Poisson process vertical3

■ Bookmark

Exercise: What kind of people are they

▶ Unit 1: Probability models and axioms

- Unit 2: Conditioning and independence
- Unit 3: Counting
- Unit 4: Discrete random variables
- Exam 1
- Unit 5: Continuous random variables

(1/1 point)

As in an earlier exercise, busy people arrive at the park according to a Poisson process with rate $\lambda_1 = 3$ /hour. Relaxed people arrive at the park according to an independent Poisson process with rate $\lambda_2 = 2$ /hour. Assume that no other people arrive at the park.

During the last 10 minutes, exactly two people arrived at the park. What is the probability that they are both relaxed?

4/25



Answer: 0.16

Answer:

As discussed in the preceding video, each arrival has probability 2/(3+2)=2/5 of being a relaxed person. Furthermore, the types (busy or relaxed) of the different arrivals are independent. Therefore, the probability that both arrivals are relaxed is $(2/5)^2 = 4/25$.

- Unit 6: Further topics on random variables
- Unit 7: Bayesian inference
- ▶ Exam 2
- Unit 8: Limit theorems and classical statistics
- ▼ Unit 9: Bernoulli and Poisson processes

Unit overview

Lec. 21: The Bernoulli process

Exercises 21 due May 11, 2016 at 23:59 UTC

Lec. 22: The Poisson process

Exercises 22 due May 11, 2016 at 23:59 UTC

Lec. 23: More on the Poisson process

You have used 1 of 2 submissions

Exercises 23 due May 11, 2016 at 23:59 UTC

Solved problems

Additional theoretical material

Problem Set 9

Problem Set 9 due May 11, 2016 at 23:59 UTC

(A)

Unit summary

Unit 10: Markov chains

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