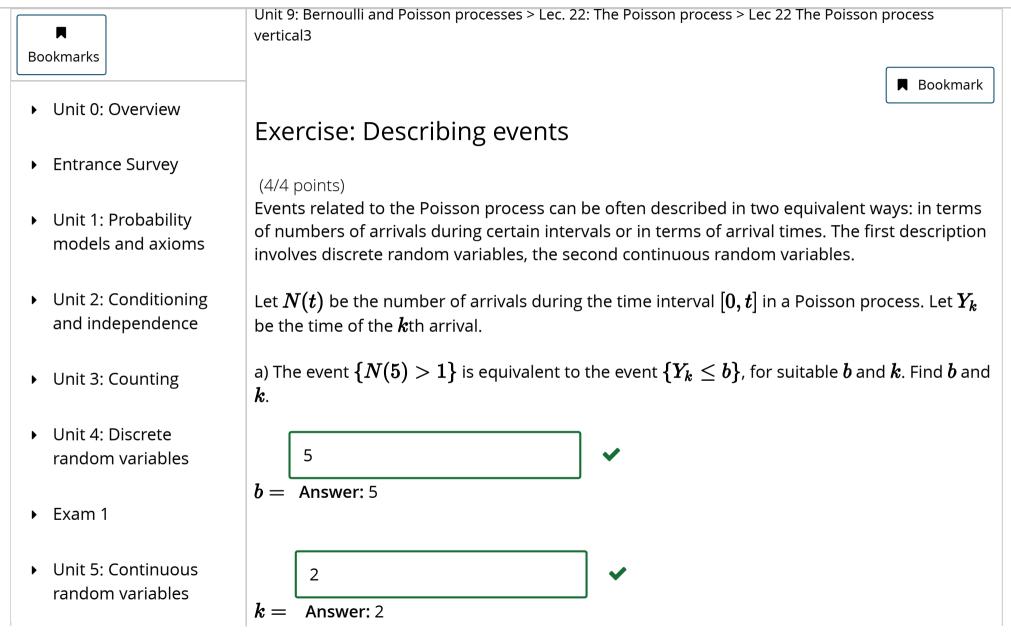


## MITx: 6.041x Introduction to Probability - The Science of Uncertainty



- 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

b) The event  $\{2 < Y_3 \le Y_4 \le 5\}$  is equivalent to the event  $\{N(2) \le a \text{ and } N(5) \ge b\}$ . Find a and b.

$$a = \text{Answer: } 2$$

Answer:

- a) We have N(5)>1 if and only if we have had two or more arrivals by time 5, i.e.,  $T_2\leq 5$ . Thus, b=5 and k=2.
- b) We have  $2 < Y_3 \le Y_4 \le 5$  if and only if by time 2 we have not yet had 3 arrivals (i.e.,  $N(2) \le 2$ ) and by time 5 we have had at least 4 arrivals (i.e.,  $N(5) \ge 4$ ). Thus, a=2 and b=4.

You have used 2 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

**Unit summary** 

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