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- ▶ [Module 1: The Basics of R and Introduction to the Course](#)
- ▶ [Entrance Survey](#)
- ▶ [Module 2: Fundamentals of Probability, Random Variables, Distributions, and Joint Distributions](#)
- ▶ [Module 3: Gathering and Collecting Data, Ethics, and Kernel Density Estimates](#)
- ▶ [Module 4: Joint, Marginal, and Conditional Distributions & Functions of Random Variable](#)

Module 6: Special Distributions, the Sample Mean, the Central Limit Theorem, and Estimation > Human Subjects and Special Distributions > The Poisson Distribution: Formal Definition - Quiz

## The Poisson Distribution: Formal Definition - Quiz

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### Question 1

1.0/1.0 point (graded)

In the Poisson Distribution discussed in class, arrivals or occurrences can be characterized by the parameters gamma ( $\gamma$ ) or lambda ( $\lambda$ ), where  $\gamma$  represents the propensity to arrive per unit of time (the arrival rate) and  $\lambda$  represents the propensity of arriving within some number of time units, an interval  $t$ .

Fill in the blanks with the correct interpretation: In the period of length \_\_\_\_\_, we can expect there to be \_\_\_\_\_ arrivals, or occurrences of the event. (Select all that apply)

☒ a.  $t; \lambda$

☐ b.  $\lambda; \gamma^*t$

☐ c.  $t; \gamma$

☒ d.  $t; \gamma^*t$




Explanation


- ▶ [Module 5: Moments of a Random Variable, Applications to Auctions, & Intro to Regression](#)

- ▼ [Module 6: Special Distributions, the Sample Mean, the Central Limit Theorem, and Estimation](#)

### **Human Subjects and Special Distributions**

Finger Exercises due Nov 07, 2016 at 05:00 IST 

### **The Sample Mean, Central Limit Theorem, and Estimation**

Finger Exercises due Nov 07, 2016 at 05:00 IST 

### **Module 6: Homework**

Homework due Oct 31, 2016 at 05:00 IST 

- ▶ [Module 7: Assessing and Deriving Estimators - Confidence Intervals, and Hypothesis Testing](#)

Gamma ( $\gamma$ ) represents the propensity to arrive for a given unit of time, while lambda ( $\lambda$ ) represents the propensity of arriving within a given time period  $t$ . In a period of time of length  $t$ , the number of arrivals or occurrences that we can expect is thus given by  $\lambda$ , which is equal to the arrival rate multiplied by the length of the period or,  $\gamma$  multiplied by  $t$ .

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You have used 1 of 2 attempts

## Question 2

1/1 point (graded)

Suppose that there is a one lane road where only one bicycle can pass through at any given point. Suppose that you know that the propensity to arrive in any given minute is 0.2. What is the expectation of the number of bicycles that will pass on the road in a 30 minute period?

6

✓ Answer: 6

6

## Explanation

We are given in the question that the propensity to arrive in any given minute ( $\gamma$ ) is 0.2 and that the time period of interest is 30 minutes, so  $t = 30$ . Using the fact that  $E[Nt] = \lambda = \gamma * t$ , we can calculate the expectation of the number of bicycles as  $E[Nt] = \lambda = \gamma * t = 0.2 * 30 = 6$ .

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You have used 2 of 2 attempts

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✓ Correct (1/1 point)

### Discussion

**Topic:** Module 6 / The Poisson Distribution: Formal Definition - Quiz

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