Bookmarks

Module 1: The Basics of R and Introduction to the Course

Welcome to the Course

Introduction to R

Introductory Lecture
Finger Exercises due Oct 03, 2016 at 05:00 IST

Module 1: Homework
Homework due Sep 26, 2016 at 05:00 IST

Entrance Survey

Module 2: Fundamentals of Probability, Random Variables, Distributions, and Joint Distributions

Exit Survey

Bookmark

Question 1

(1/1 point)

Which of the following statements comparing the similarities and differences between discrete and continuous random variables are true?

a. For both a discrete and random variable, the probability function and probability density function evaluated at a particular x can have a positive nonzero probability.

b. For a discrete random variable, the probability function $f_x(x)$ evaluated at x can be equal to a positive probability; for a continuous random variable, the probability of a particular point is zero, though the function $f_x(x)$ evaluated at x is not necessarily zero. ✔

c. For both a discrete and random variable, the probability function and the probability density function evaluated at a particular x is always equal to zero.

d. For both a discrete and random variable, the area under the curve at x represents the probability that the random variable takes on the value x.

EXPLANATION

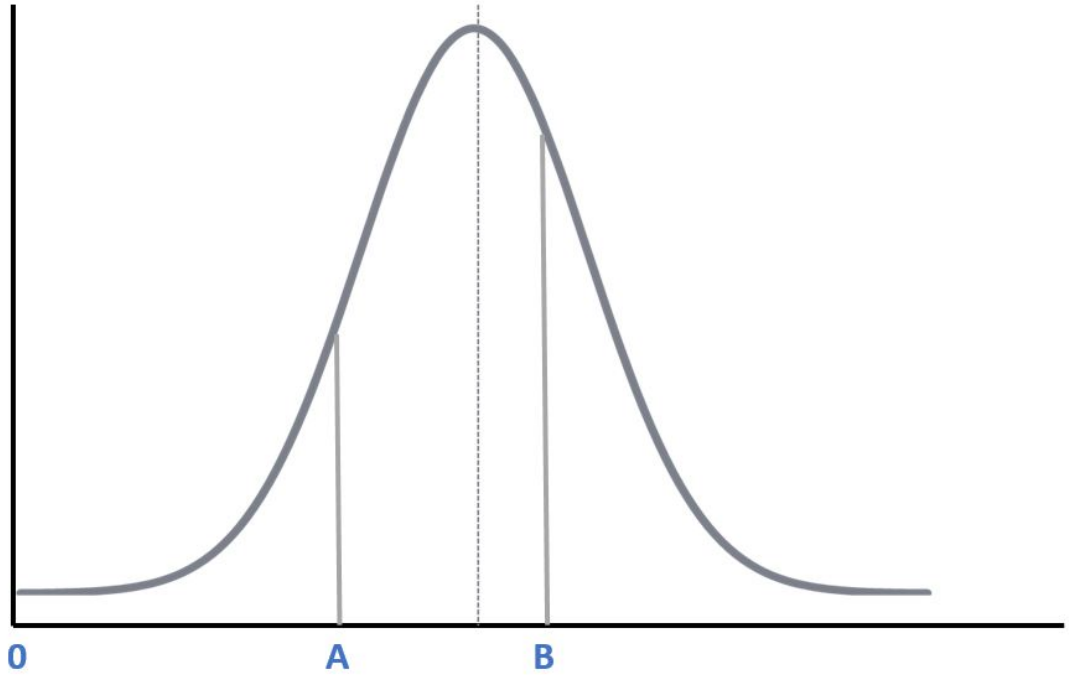
As discussed in class, this is the fundamental difference between discrete and continuous random variables. While for a discrete variable, $f_X(x)$ evaluated at x can be equal to a positive probability, for a continuous random variable, $f_X(x)$ evaluated at all x is equal to zero.

You have used 1 of 2 submissions

Question 2

(1/1 point)

Given the probability density function below for the random variable X, which of the following would represent the probability that the random variable X is between A and B?



- a. The horizontal distance from A to B
- b. The horizontal distance from A to B divided by the horizontal distance from 0 to B
- c. The sum of the areas under the curve to the left of A and to the right of B
- d. The area under the curve to the left of B and to the right of A ✔

EXPLANATION

To get the probability that the continuous random variable X is between A and B, you take the integral of the probability density function from A to B. Graphically, this is equivalent to computing the area under the curve from A to B. (Remember that the total area under the curve is equal to one).

You have used 1 of 2 submissions