

MITx: 14.310x Data Analysis for Social Scientists

Heli



 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 7: Assessing and Deriving Estimators - Confidence Intervals, and Hypothesis Testing > Confidence Intervals and Hypothesis Testing > Constructing Confidence Intervals, Case I - Quiz

Constructing Confidence Intervals, Case I - Quiz

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Question 1

1/1 point (graded)

Suppose you are sampling from a normal distribution with a known variance and you want to construct a confidence interval for the mean. You have an estimator for the mean \bar{X} , which has a normal distribution with mean 10 and variance 4. What are the bounds on the corresponding 95% confidence interval?

Please round your answers to 2 decimal points, i.e. if the answer is 2.2123, please round to 2.21 or if it is 2.2167, please round to 2.22.

A. Lower Bound

6.08	✓ Answer: 6.08
6.08	

B. Upper Bound

13.92	✓ Answer: 13.92
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- Module 5: Moments of a Random Variable,
 Applications to Auctions,
 Intro to Regression
- Module 6: Special
 <u>Distributions, the</u>
 <u>Sample Mean, the</u>
 <u>Central Limit Theorem,</u>
 and Estimation
- Module 7: Assessing and Deriving Estimators - Confidence Intervals, and Hypothesis Testing

Assessing and Deriving Estimators

Finger Exercises due Nov 14, 2016 at 05:00 IST

Confidence Intervals and Hypothesis Testing

Finger Exercises due Nov 14, 2016 at 05:00 IST

Module 7: Homework

Homework due Nov 07, 2016 at 05:00 IST

13.92

Explanation

Since you know the underlying distribution from which you are sampling is N(10,4), you can use the formula given by Professor Ellison in class:

$$[ar{X}+\Phi^{-1}(lpha/2)\sigma,ar{X}-\Phi^{-1}(lpha/2)\sigma]$$

By either using R, or the standard normal distribution table, you know that the critical value $(\Phi^{-1}(\frac{1-0.95}{2}))$ for the 95% confidence interval is 1.96. Plugging in the relevant quantities:

$$[10 - 1.96(\sqrt{4}), 10 + 1.96(\sqrt{4})] = [6.08, 13.92]$$

Submit

You have used 1 of 2 attempts

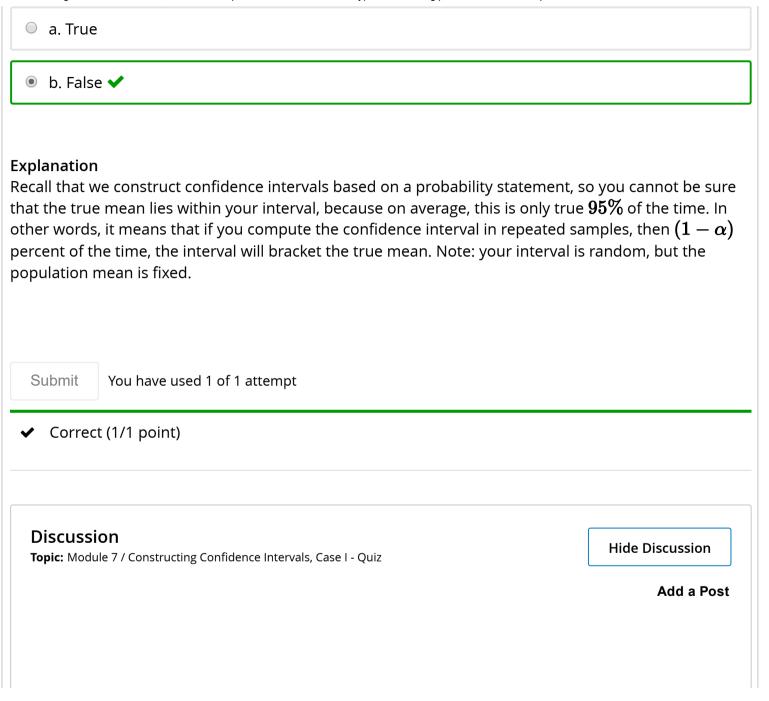
✓ Correct (1/1 point)

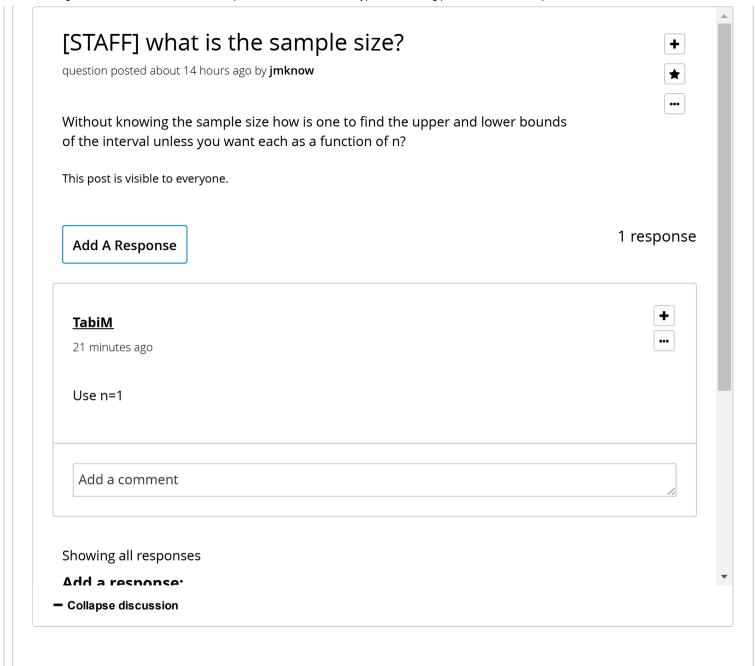
Question 2

1/1 point (graded)

True or False: Based on the confidence interval you obtained in question 1, you know that the true mean is definitely between A (the lower bound) and B (the upper bound).

Exit Survey





Clarify wording - Confidence Intervals Case 1s

discussion posted 3 days ago by Margaret_Niehaus

The wording for Question 1 seems off? If you know the mean for the estimator (uppercase X-bar) then you already have the mean for the population,...

This post is visible to everyone.

+ Expand discussion

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