

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
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Module 7: Assessing and Deriving Estimators - Confidence Intervals, and Hypothesis Testing > Confidence Intervals and Hypothesis Testing > Introducing the Standard Errors - Quiz

# Introducing the Standard Errors - Quiz

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# **Question 1**

1/1 point (graded)

True or False: As your sample size goes up, your standard error will increase.

a. True

🏿 b. False 🗸

# **Explanation**

From the formula Professor Ellison showed in class, we know that  $SE(\bar{X}_n)=\frac{\sigma}{\sqrt{n}}$ . So as your sample size increases, the standard error decreases. Intuitively, the larger your sample size, the more precise your estimates will be.

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You have used 1 of 1 attempt

- Module 5: Moments of a Random Variable,
   Applications to Auctions,
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- 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

### <u>Assessing and Deriving</u> 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

✓ Correct (1/1 point)

## **Question 2**

1/1 point (graded)

What is the relationship between sample size and confidence intervals? (Select all that apply)

- a. the larger your sample size, the narrower your confidence interval.
- b. the smaller your sample size, the narrower your confidence interval.
- c. the larger your sample size, the wider your confidence interval.
- d. the smaller your sample size, the wider your confidence interval.



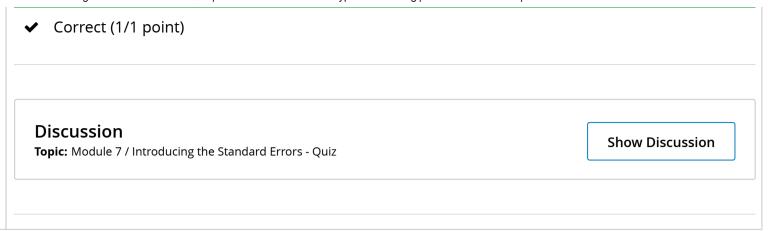
#### **Explanation**

Remember, just like standard errors, confidence intervals are just another way to represent the same information about the tightness of the distribution of the estimator. So the larger your sample size, the smaller your standard errors, and so the tighter the distribution of the estimator, and the narrower your interval. Similarly, the smaller your sample size, the larger your standard errors, and so the more dispersed the distribution of your estimator, and the wider your interval.

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