



Problem Set #5 - Confidence Intervals

Review

Problem Set #5 - Confidence Intervals

Use the following information for the next three questions: A confidence interval is desired for the true average stray-load loss μ (watts) for a certain type of induction motor when the line current is held at 10 amps for a speed of 1500 rpm. It is known that the distribution of stray-load loss is approximately normal.



Question 1

Review



Fill in the Blanks

Type your answers in all of the blanks and submit

 x_2 x^2 Ω

Compute the 95% confidence interval for μ when $n = 25$, $\bar{x} = 57$, and $s = 3.15$. In the spaces below, you must enter the lower bound first and the upper bound second. Round your bounds to

three decimal places.

95% CI = (,)

Correct Answers:

Compute the 95% confidence interval for μ when $n=25$, $\bar{x}=57$, and $s=3.15$. In the spaces below, you must enter the lower bound first and the upper bound second. Round your bounds to three decimal places. 95% CI = (

✓ 55.7

 Show Submitted Answer

✓ 58.3

 Hide Correct Answer

Check My Answer



Question 2

Review



Fill in the Blanks

Type your answers in all of the blanks and submit

χ^2 χ^2 Ω

Compute the 95% confidence interval for μ when $n = 100$, $\bar{x} = 57$, and $s = 3.15$. In the spaces below, you must enter the lower bound first and the upper bound second. Round your bounds to three decimal places.

95% CI = (,)

Correct Answers:

Compute the 95% confidence interval for μ when $n=100$; $\bar{x}=57$, and $s=3.15$. In the spaces below, you must enter the lower bound first and the upper bound second. Round your bounds to three decimal places. 95% CI = (

✓ 56.375

...,

✓ 57.625

 Show Submitted Answer

 Hide Correct Answer

Check My Answer



Question 3

Review



Fill in the Blanks

Type your answers in all of the blanks and submit

X_2 X^2 Ω

Compute the 99% confidence interval for μ when $n = 100$, $\bar{x} = 57$, and $s = 3.15$. In the spaces below, you must enter the lower bound first and the upper bound second. Round your bounds to three decimal places.

99% CI = (,)

Correct Answers:

Compute the 99% confidence interval for μ when $n=100$, $\bar{x}=57$, and $s=3.15$. In the spaces below, you must enter the lower bound first and the upper bound second. Round your bounds to three decimal places. 99% CI = (

✓ 56.173

 Show Submitted Answer

 Hide Correct Answer

Check My Answer

✓ 57.827

Use the following information for the next three questions: In a survey of 200 randomly selected engineering students from universities across the country, 125 reported that they use MATLAB for their coursework.



Question 4

Review



Fill in the Blanks

Type your answers in all of the blanks and submit

x_e x^e Ω

Construct a 95% confidence interval for the proportion of engineering students who use MATLAB. In

the spaces below, you must enter the lower bound first and the upper bound second. Round your

bounds to three decimal places.

95% CI = (,)

Correct Answers:

Construct a 95% confidence interval for the proportion of engineering students who use MATLAB. In the spaces below, you must enter the lower bound first and the upper bound second. Round your bounds to three decimal places. 95% CI = (

✓ 0.558

...,

✓ 0.692



Show Submitted Answer



Hide Correct Answer

Check My Answer



Question 5

Review



Fill in the Blanks

Type your answers in all of the blanks and submit

x_e x^e Ω

Construct a **99%** confidence interval for the proportion of engineering students who use MATLAB. Fill in the following interpretation for the confidence interval. Round any numerical values to three decimal places.

We are 99% that the true of all

engineering students who use MATLAB is between and

with a point estimate of

.

Correct Answers:

Construct a **99%** confidence interval for the proportion of engineering students who use MATLAB. Fill in the following interpretation for the confidence interval. Round any numerical values to three decimal places. We are 99%

✓ confident

...that the true

✓ proportion

...of all engineering students who use MATLAB is between

✓ 0.537

...and

✓ 0.713

...with a point estimate of

✓ 0.625

 Show Submitted Answer

 Hide Correct Answer

Check My Answer



Question 6

Review



Construct a **90%** confidence interval for the proportion of engineering students who use MATLAB. Select the following conclusion based on the 90% confidence interval.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a

There is 90% chance that the true proportion of all engineering students who use MATLAB is between 0.569 and 0.681 with a point estimate of 0.625.

b

We are 90% confident that the true proportion of all engineering students who use MATLAB is between 0.569 and 0.681 with a point estimate of 0.625.

c

We are 90% confident that the sample proportion of engineering students that use MATLAB from this sample of 200 students is between 0.569 and 0.681 with a point estimate of 0.625.

d

There is a 90% chance that a sample of 200 students will yield a proportion that uses MATLAB between 0.569 and 0.681.

Correct Answer:

- ✓ b We are 90% confident that the true proportion of all engineering students who use MATLAB is between 0.569 and 0.681 with a point estimate of 0.625.


[Show Submitted Answer](#)

[Hide Correct Answer](#)
[Check My Answer](#)

Use the following information for the next two questions: A manufacturer produces light bulbs and claims that 80% of bulbs last more than 1000 hours. A sample of 75 light bulbs is randomly selected and tested, and it is found that 62 bulbs last more than 1000 hours.



Question 7

Review



Fill in the Blanks

Type your answers in all of the blanks and submit

 x_1
 x_2
 Ω

Construct a 90% confidence interval for the true proportion of light bulbs that last more than 1000

hours. In the spaces below, you must enter the lower bound first and the upper bound second. Round

your bounds to three decimal places.

90% CI = (,)

Your Answer

 [Hide Submitted Answer](#)

Your Answer

 [Show Correct Answer](#)

[Check My Answer](#)




Question 8

Review




 Important

Consider constructing a confidence interval used to estimate the population mean. Which of the following will affect the width of the interval? *Select all that apply.*




 **Multiple answers:** Multiple answers are accepted for this question

Select one or more answers and submit. For keyboard navigation:

- Use the tab key to navigate through answers
- Hit the space bar to select an answer [SHOW LESS](#) ^

a	the sample mean	
b	the sample standard deviation	 Your answer
c	the sample size	 Your answer
d	the confidence level	 Your answer

Correct Answers:

-  b - the sample standard deviation
-  c - the sample size
-  d - the confidence level

 [Show Submitted Answer](#)

 [Hide Correct Answer](#)

[Check My Answer](#)

↶ ↗ Open in Reading View