FER-Probability and Statistics

Calculator

5. A study has a sample size of 5, a standard deviation of 10.4, and a sample standard deviation of 11.6. What is most nearly the variance?

○ 46

○ 130

○ 110

○ 52

12. A simulation model for a transportation system is run for 30 replications, and the mean percentage utilization of the transporter used by the system is recorded for each replication. Those 30 data points are then used to form a confidence interval on mean transporter utilization for the system. At a 95% confidence level, the confidence interval is found to be 37.2% ± 3.4%.

Given this information, which of the following facts can be definitively stated about the system?

○ At 95% confidence, the population mean of transporter utilization lies outside of the range of 37.2% ± 3.4%.

○ At 95% confidence, the population mean of transporter utilization lies in the range 37.2% ± 3.4%.

○ At 95% confidence, the sample mean of transporter utilization lies in the range 37.2% ± 3.4%.

○ At 5% confidence, the population mean of transporter utilization lies inside of the range of 37.2% ± 3.4%.

Multiple Choice   1 point

You would like to test the null hypothesis at a 5% level of significance that the mean shear strength of spot welds is at least 450 psi. You randomly select 15 welds, measure the shear strength, and determine the following results.

sample mean ($\bar{x}$):   445 psi

sample standard deviation (s):   10 psi

Based upon the data,

○ there is not enough information to say the hypothesis is true

○ the null hypothesis is true

○ the null hypothesis is false

○ there is not enough information to say the hypothesis is false