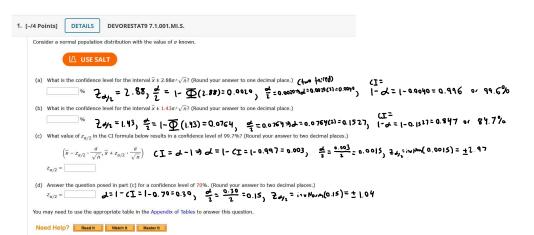
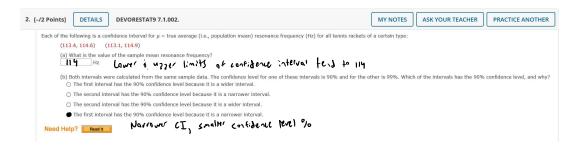
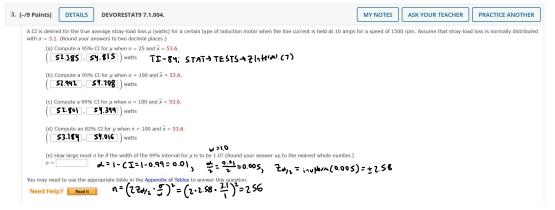
Ch7 - Statistical Intervals Based on a Single Sample

Thursday, June 22, 2023 11:53 AM







A general formula for the sample size n necessary to ensure an interval width w is obtained from equating w to $2 \cdot z_{\alpha/2} \cdot \sigma/\sqrt{n}$ and solving for n.

The sample size necessary for the Cl (7.5) to have a width w is

$$n = \left(2z_{lpha/2} \cdot rac{\sigma}{w}
ight)^2$$

Topics:

7.1 Basic Properties of Confidence Intervals

Interpreting a Confidence Level

Other Levels of Confidence

Confidence Level, Precision, and Sample Size

Deriving a Confidence Interval

Bootstrap Confidence Intervals

Exercises Section 7.1 (1-11)

Proportion

A Large-Sample Interval for μ

A General Large-Sample Confidence Interval

A Confidence Interval for a Population Proportion

7.2 Large-Sample Confidence Intervals for a Population Mean and

One-Sided Confidence Intervals (Confidence Bounds)

7.3 Intervals Based on a Normal Population Distribution

 $\underline{\textbf{Properties of } t \ \textbf{Distributions}}$

The One-Sample t Confidence Interval

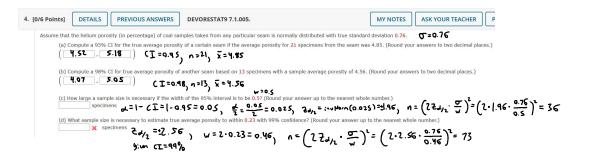
A Prediction Interval for a Single Future Value

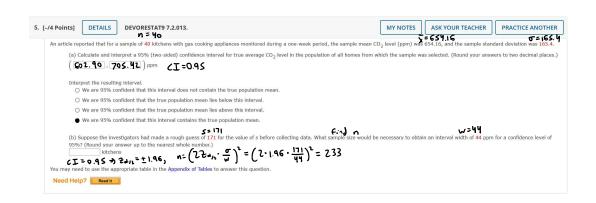
Tolerance Intervals

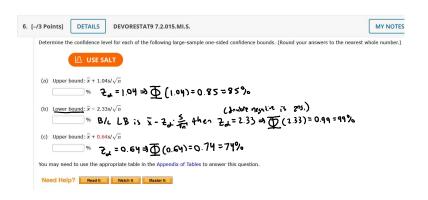
Intervals Based on Nonnormal Population Distributions

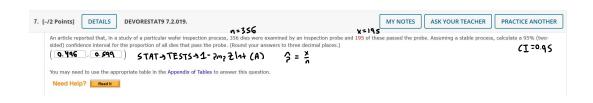
Exercises Section 7.3 (28-41)

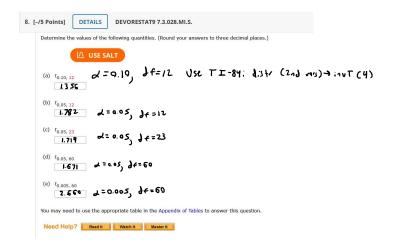
7.4 Confidence Intervals for the Variance and Standard Deviation of a Normal Population

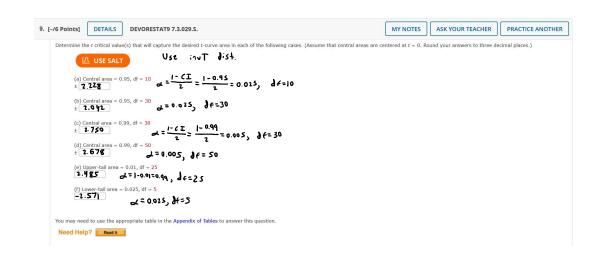


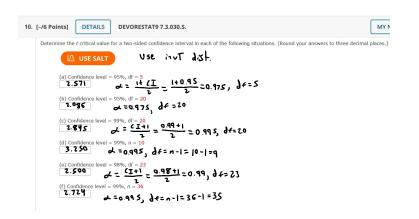


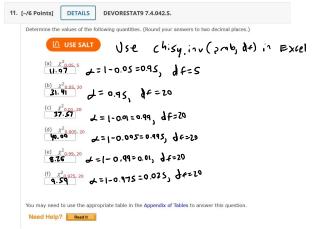


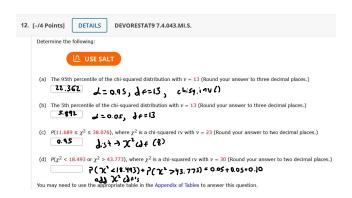


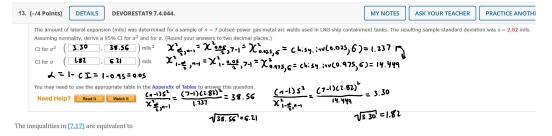












 $\frac{(n-1)S^2}{\chi^2_{\alpha/2,n-1}} < \sigma^2 < \frac{(n-1)S^2}{\chi^2_{1-\alpha/2,n-1}}$

Substituting the computed value s^2 into the limits gives a CI for σ^2 , and taking square roots gives an interval for σ .