Set 38 Let ${x_1}^{obs}, \ldots, {x_n}^{obs}$ be observations, and let x and $\hat{\sigma}^2$ be the sample mean and variance, respectively. Does the 95% confidence interval

$$\left[\bar{x} - 1.96\frac{\hat{\sigma}}{\sqrt{n}}, \bar{x} + 1.96\frac{\hat{\sigma}}{\sqrt{n}}\right]$$

(a) cover the (unknown) population mean μ?

The confidence interval covers the population mean with a confidence percentage of 95%.

(b) cover the sample mean $\bar{x}$?

The confidence interval covers the sample mean.