

8.2 If $\bar{X} = 125$, $\sigma = 24$, and $n = 36$, construct a 99% confidence interval estimate for the population mean, μ .

8.8 You are working as an assistant to the dean of institutional research at your university. The dean wants to survey members of the alumni association who obtained their baccalaureate degrees five years ago to learn what their starting salaries were in their first full-time job after receiving their degrees. A sample of 100 alumni is to be randomly selected from the list of 2,500 graduates in that class. If the dean's goal is to construct a 95% confidence interval estimate for the population mean starting salary, why is it not possible that you will be able to use Equation (8.1) on page 241 for this purpose? Explain.

CONFIDENCE INTERVAL FOR THE MEAN (σ KNOWN)

$$\bar{X} \pm Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

or

$$\bar{X} - Z_{\alpha/2} \frac{\sigma}{\sqrt{n}} \leq \mu \leq \bar{X} + Z_{\alpha/2} \frac{\sigma}{\sqrt{n}} \quad (8.1)$$

where

$Z_{\alpha/2}$ is the value corresponding to an upper-tail probability of $\alpha/2$ from the standardized normal distribution (i.e., a cumulative area of $1 - \alpha/2$).

8.20 The file **SUV** contains the overall MPG of 2015 small SUVs:

26 22 24 22 26 21 24 25 28 24
22 21 22 21 24 23 23 22 21 22

Source: Data extracted from "Which Car Is Right for You," *Consumer Reports*, April 2015, pp. 60–61.

- Construct a 95% confidence interval estimate for the population mean MPG of 2015 small SUVs, assuming a normal distribution.
- Interpret the interval constructed in (a).
- Compare the results in (a) to those in Problem 8.19(a).