

Question #71380, Math / Statistics and Probability

A publishing company has just published a new college textbook. Before the company decides the price at which to sell this textbook, it wants to know the average price of all such textbooks in the market. The research department at the company took a sample of 25 comparable textbooks and collected information on their prices. This information produced a mean price of \$145 for this sample. It is known that the standard deviation of the prices of all such textbooks is \$35 and the population of such prices is normal.

- (a) What is the point estimate of the mean price of all such college textbooks?
- (b) Construct a 90% confidence interval for the mean price of all such college textbooks

Answer.

(a) Point estimate: $\bar{x} = 145$.

$$\begin{aligned} \text{(b) } 90\%CI &= \left(\bar{x} - z_{0.05} \frac{\sigma}{\sqrt{n}}, \bar{x} + z_{0.05} \frac{\sigma}{\sqrt{n}} \right) = \\ &= \left(145 - 1.645 \frac{35}{\sqrt{25}}, 145 + 1.645 \frac{35}{\sqrt{25}} \right) = (133.485, 156.515). \end{aligned}$$

Answer provided by <https://www.AssignmentExpert.com>