

### Answer on Question #56691 – Math – Statistics and Probability

An English professor is attempting to estimate the mean number of novels that the student body reads during their time in college. He is conducting an exit survey with seniors. He hopes to have a margin of error of 3 books with 95% confidence. From reading previous studies, he expects a large standard deviation and is going to assume it is 10. How many students should he survey?

#### Solution

The sample size will be

$$n = \left( \frac{z^* \sigma}{E} \right)^2,$$

where  $z^* = \frac{z_{1-0.95}}{2} = z_{0.025} = 1.96$  for 95% confidence level.

$$n = \left( \frac{1.96 \cdot 10}{3} \right)^2 = 42.7 \text{ round up to } 43.$$

**Answer: 43.**