

Estimating The Mean of Sample surveys: Step-by-Step Lesson

A survey was conducted on the support of uniforms at the school level. The survey found that 30% of people support school uniforms. The survey results were estimated to have a 2.5% margin of error, with 95% confidence. What is minimum number of people that would have been surveyed to reach the margin of error level presented (2.5)?



Explanation:

ME is margin of Error

$$ME = z\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

z is the z-score, e.g. 1.645 for 90 % confidence interval, 1.96 for 95 % confidence interval, 2.58 for 99 % confidence interval (from the z- score table

\hat{p} is our estimate of the correct value of p

n is the sample size (to be found)

So,

$$0.025 = 1.96\sqrt{\frac{0.3 \times 0.7}{n}} \text{ or } \frac{0.3 \times 0.7}{n} = \left(\frac{0.025}{1.96}\right)^2 = 0.0001627$$

$$n = \frac{0.3 \times 0.7}{0.0001627} = 1291$$

1,300 students must have been sampled for the given margin of error and confidence level.

