
SOLUTION TO

TEST YOUR KNOWLEDGE: Sample Size Determination

1. Suppose the population standard deviation, σ , is 40 based upon previous studies. We would like to estimate the population mean within ± 8 of its true value, at a significance level of .05 (95% Confidence interval). What sample size should be taken?

$$n = \frac{Z^2 \sigma^2}{e^2} = \frac{1.96^2 40^2}{8^2} = 96.04 \text{ round up to } 97$$

2. We are working with proportions. Suppose we want the maximum error of $e = .025$ (2.5%) with 95% confidence. Assume that the variance is the highest possible, $P = .50$. What sample size should be used?

$$n = \frac{1.96^2 (.5)(1-.5)}{.025^2} = 1536.64 \text{ round up to } 1,537$$