

Sample Size for Population Proportion

The Cell Phone Example



The Problem:

How many cellular phones must a manufacturer test to estimate the fraction defective, p , to within .01 with 90% confidence, if an initial estimate of .10 is used for p ?



The solution:

$$SE = z_{\alpha/2} \sqrt{\frac{pq}{n}}$$

$$n = \frac{(z_{\alpha/2})^2 (pq)}{(SE)^2}$$

$$n = \frac{(1.645)^2 (.1)(.9)}{(.01)^2}$$

$$n = 2435.4 \cong 2436$$

