

## Answer on Question #67669 – Math – Statistics and Probability

### Question

It's believed that as many as 22% of adults over 50 never graduated from high school. We wish to see if this percentage is the same among the 25 to 30 age group.  
a) How many of this younger age group must we survey in order to estimate the proportion of non-grads to within 10% with 90% confidence?

### Solution

$$ME = z_{0.05} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$
$$n = \left(\frac{z_{0.05}}{ME}\right)^2 \hat{p}(1-\hat{p}) = \left(\frac{1.645}{0.1}\right)^2 \cdot 0.22 \cdot 0.78 = 47.$$

**Answer:** 47.