

## B3

$$p = 32\% \quad \alpha = 5\% \quad n = 450$$

Population                      Voters in the United States  
Focus Proportion                Adults Supporting Santorum

### Step I Identify Procedure:

We want to estimate the proportion of **adults supporting Santorum** in the population of **voters in the United States** ( $p$ ).

### Step II Check Conditions:

**Random Sample:** A **random sample** was conducted to insure every member of the population was equally likely to be selected.

**Normal Sample Distribution:** The sampling distribution of all the possible sample proportions has an approximately normal shape because:

$$\begin{array}{ll} n * p > 10 & n * (1 - p) > 10 \\ 450 * 32\% > 10 & 450 * 68\% > 10 \end{array}$$

**Independence:** The lack of replacement is not a problem in this case because the number of subjects in the population is more than 10 times the sample size.

**Step III Perform Procedure:**

Estimate

32%

+/-

Margin of Error

4.3%

95 % Confidence Interval Ranges From 27.7% to 36.3%

**Step IV Interpretation:**

We are 95% confident that the proportion of adults supporting Santorum in the population of voters in the United States ( $p$ ) falls between 27.7 % and 36.3%.



