

**A.P. Statistics**  
**Assignment 9.4**

**Remember to show your thinking through your work.**

- 1) What conditions must be met before constructing a confidence interval for a proportion? Be sure to be specific with regard to whether you use  $p$  or  $p$ -hat in your check.

- 2) What is the formula for the confidence interval. Then, define what each variable represents.

- 3) In the 1996 regular baseball season, the World Series Champion New York Yankees played 80 games at home and 82 games away. They won 49 of their home games and 43 of the games played away. We can consider these games as samples from potentially large populations of games played at home and away. How much advantage does the Yankee home field provide?

- (a) Find the proportion of wins for the home games. Do the same for the away games.

- (b) Find the standard error needed to compute a confidence interval for the difference in the proportions.

- (c) Compute a 90% confidence interval for the difference between the probability that the Yankees win at home and the probability that they win when on the road. Are you convinced that the 1996 Yankees were more likely to win at home?

- 4) The state agriculture department asked random samples of Indiana farmers in each county whether they favored a mandatory corn checkoff program to pay for corn product marketing and research. In Tippecanoe County, 263 farmers were in favor of the program and 252 were not. In neighboring Benton County, 260 were in favor and 377 were not.

- (a) Find the proportions of farmers in favor of the program in each of the two counties.

- (b) Compute a 95% confidence interval for the difference between the proportions of farmers favoring the program in Tippecanoe County and in Benton County. Do you think opinions differed in the two counties?

