Problems for Lecture on Section 7-2

1. Recently, 829 adult Minnesotans were surveyed, and 51% of them are opposed to the use of the photo-cop for issuing traffic tickets. Use these survey results to answer the following.
   a. Find the margin of error $E$ that corresponds to a 95% confidence level.
   b. Find the 95% confidence interval estimate of the population proportion $p$.
   c. Based on the results, can we safely conclude that the majority of adult Minnesotans oppose use the photo-cop?

2. Suppose a sociologist wants to determine the current percentage of U.S. households using e-mail. How many households must be surveyed in order to be 95% confident that the sample percentage is in error by no more than four percentage points?
   a. Use this result from an earlier study: In 1997, 16.9% of U.S. households used e-mail (based on data from The World Almanac and Book of Facts).
   b. Assume that we have no prior information suggesting a possible value of $p$. 

3. In a CNN/Time poll of likely voters in Florida conducted 10/11 through 10/14 Barack Obama had 51% of the vote and John McCain had 46% of the vote. The margin of error was 3.5%.
   a. Give the confidence intervals for Obama and McCain.
   b. Based upon these confidence intervals, does it appear as if Obama has more votes than McCain for all likely voters in Tennessee?

4. A random sample of 800 high school students yields the 95% confidence interval 0.52 < p < 0.58 for the true proportion of all high school students who own their own cell phone.
   a. What was the sample proportion of students who owned their own cell phone?
   b. What was the margin of error for the confidence interval?
   c. Could you conclude from this confidence interval that it appears as if a majority of high school students own their own cell phone?