QUIZ 1 -SOLUTION

From the GALLUP Web Page: "Less than four months remain before the world learns what the Year-2000 computer bug has in store for the systems and people worldwide who depend on computer accuracy. It is unknown whether mayhem or sighs of relief will break out on January 1, 2000, when some computers mistakenly believe William McKinley is U.S. president. But according to a new Gallup survey, the vast majority of Americans now feel fairly confident that any problems that ensue from the Y2K programming glitch will be minor, at worst, and will last for only a few days or weeks, at most. The new Gallup survey, conducted August 25-29 in partnership with USA Today and the National Science Foundation (NSF), is the third in a special series of polls tracking public awareness of and anxiety about the Y2K issue. The results below are based on telephone interviews with a randomly selected national sample of 1,014 adults, 18 years and older, conducted August 25-29, 1999."

When asked "Do you think that computer mistakes due to the Year-2000 issue will cause major problems, minor problems, or no problems at all for you personally?" 52% gave the response "minor problems".

Please answer the following questions. Your answers should be to the point and not based on speculation beyond information provided here. A BONUS QUESTION is on the back.

1. Based on the information provided, do you think the sampling frame and population are the same for this poll? Explain. What impact should this have on results?

   The sampling frame is limited to those with phones. Population is all Americans, so they are not the same. Since the percentage of people without phones is small this will not change the conclusions by much if at all.

2. What is the margin of error for this poll?

   $1/\sqrt{1014}$ so roughly 3%

3. Construct an interval that almost surely contains the population percentage of Americans who feel that the Y2K bug will cause them only minor problems.

   $52\% \pm 3\%$ or (49%, 55%)

BONUS If you wanted to be almost sure (at least 95% confident) that more than a majority of the population felt that the Y2K bug would cause only minor difficulty for them personally, how many individuals would you need to sample? (Assume that the percentage stays the same at 52%)

you would need over 2500