Use the following information to answer problems 1-3:
Manufacturers of photographic equipment have introduced many new easy-to-use cameras, film types and flash equipment in recent years. A new type of flashbulb was tested to estimate the proportion of new bulbs that would produce the required light output at the appropriate time. A sample of 1000 bulbs was tested and 920 were observed to function according to specifications.

1. Find a 99% confidence interval estimate for the true proportion of bulbs functioning according to specifications.

2. How large a sample should be taken in order to estimate the proportion to within 2%, with 99% confidence?

3. If we calculate a 95% confidence interval (CI) instead of a 99% confidence interval, then:
   A. The midpoint and the width of the CI would increase.
   B. The midpoint of the CI would decrease, but the width would be unchanged.
   C. The midpoint and the width of the CI would decrease.
   D. The midpoint of the CI would be unchanged, but the width would decrease.

   Answer:

4. A survey was conducted to determine the proportion of adults who approve of attempts to clone a human. Based on the response of 1000 adults a 90% confidence interval was calculated to be (0.09, 0.13).
   A. What is the point estimate of the true proportion of adults who approve of attempts to clone a human?

   Answer

   B. The margin of error for the confidence interval is:

   Answer:
5. A researcher has estimated that at most 49% of American adults skip breakfast on weekdays. In a random sample of 250 American adults, 140 said they skip breakfast on weekdays. Find a 95% confidence interval estimate for the true proportion of American adults who skip their breakfast on weekdays.

6. The U.S. Department of Labor’s Bureau of Labor Statistics published an estimate that the unemployment rate for recent college graduates is 12%. Coincidentally, a college alumni association recently contacted 410 randomly selected graduates from the class of 2008. 14% of the sample of 410 recent graduates was found to be unemployed.

   A. Describe the sampling distribution of the sample proportion of recent graduates who are unemployed. Using the appropriate notation, give the name and parameters of the distribution.

   B. Find the probability that in a random sample of 410 recent college graduates between 14% and 16% will be unemployed

7. What are two ways to get a narrower confidence interval for a proportion?