**Honors Statistics**
Review 6.3

**Provide an appropriate response.**

1) Find the critical value $z_c$ that corresponds to a 94% confidence level.

2) A random sample of 40 students has a mean annual earnings of $3120 and a standard deviation of $677. Find the margin of error if c = 0.95.

3) Which level of confidence will produce the narrowest confidence interval: 75%, 85%, 90%, or 95%? Explain your reasoning.

4) A random sample of 150 students has a grade point average with a mean of 2.86 and with a standard deviation of 0.78. Construct the confidence interval for the population mean, $\mu$, if c = 0.98.

5) A group of 40 bowlers showed that their average score was 192 with a standard deviation of 8. Find the 95% confidence interval of the mean score of all bowlers.

6) A random sample of 40 students has a test score with $\bar{x}$ = 81.5 and s = 10.2. Construct the confidence interval for the population mean, $\mu$ if c = 0.90.

7) In a random sample of 60 computers, the mean repair cost was $150 with a standard deviation of $36. Construct a 90% confidence interval for the population mean.

8) In order to set rates, an insurance company is trying to estimate the number of sick days that full time workers at an auto repair shop take per year. A previous study indicated that the standard deviation was 2.8 days. How large a sample must be selected if the company wants to be 95% confident that the true mean differs from the sample mean by no more than 1 day?

9) In order to fairly set flat rates for auto mechanics, a shop foreman needs to estimate the average time it takes to replace a fuel pump in a car. How large a sample must he select if he wants to be 99% confident that the true average time is within 15 minutes of the sample average? Assume the standard deviation of all times is 30 minutes.

10) The standard IQ test has a mean of 100 and a standard deviation of 13. We want to be 98% certain that we are within 2 IQ points of the true mean. Determine the required sample size.

1) ±1.88
2) $210
3) The 75% level of confidence will produce the narrowest confidence interval. As the level of confidence decreases, $z_c$ decreases, causing narrower intervals.
4) (2.71, 3.01)
5) (189.5, 194.5)
6) (78.8, 84.2)
7) ($142, $158)
8) 31
9) 27
10) 230