Name	Date
Elementary Statistics	Period
Chapter 7 Quiz #1 Review	
For questions 1-14, write the proper notation for each of the following values:	:
1. Population proportion	
2. Sample proportion of successes	
3. Sample proportion of failures	
4. Population mean	
5. Sample mean	
6. Point estimate of the population proportion	
7. Point estimate of the population mean	
8. Confidence level	
9. Confidence interval	
10. Critical value of student-t distribution	
11. Critical value of standard normal distribution	
12. Margin of error	
13. Sample size	
14. Degrees of freedom	
15. Express the confidence interval $$ 0.165 \hat{p}\pm E	

16. Express the confidence interval (0.0268, 0.133) in the form $(\bar{x} - E) < \mu < (\bar{x} + E)$

- 17. A Consumer Reports Research Center survey of 427 women showed that 29.0% of them purchase books online. You want to estimate the population proportion of women who purchase books online.
 - a. What <u>requirements</u> must be met in order to estimate a population proportion p using confidence intervals?

b. What is the best point estimate of the population proportion?

c. Find the <u>critical value</u> that corresponds to a 95% confidence level.

d. Find the margin of error.

e. Construct a 95% <u>confidence interval</u> estimate of the population proportion.

f. How should you interpret the confidence interval estimate of the population proportion?

- 18. You are trying to find the sample size needed to estimate the percentage of Democrats who have tattoos using a 0.05 margin of error and a confidence level of 99%.
 - a. Find the sample size if we assume we have no prior information suggesting a possible value of \hat{p} .

b. Find the <u>sample size</u> if we use results from a prior Pew Research Center poll suggesting that 15% of Democrats have tattoos.

- 19. Using a sample of 51 earthquakes, the depths (in km) were found to have a mean of 9.808 km and a standard deviation of 5.013 km and approximate a normal distribution. Use a 98% confidence level and assume that we do not know the standard deviation for the population.
 - a. What <u>requirements</u> must be met in order to estimate a population mean μ using confidence intervals?

b. What is the best point estimate of the population mean?

c. Find the <u>critical value</u> that corresponds to a 98% confidence level.

d. Find the margin of error.

e. Construct a 98% confidence interval estimate of the population mean.

f. Suppose you found a previous study regarding depths of earthquakes and the population standard deviation was found to be 5.102. Construct a 98% <u>confidence interval</u> estimate of the population mean.

g. Compare the confidence interval estimates found in parts e and f. Which is wider? Why?

20. You want to estimate the mean amount of time Internet users spend on Facebook each month. <u>How many internet users</u> must be surveyed in order to be 90% confident that your sample mean is within 15 minutes of the population mean? Based on the results from a prior Nielsen survey, assume that the standard deviation of the population of monthly times spent on Facebook is 210 min.