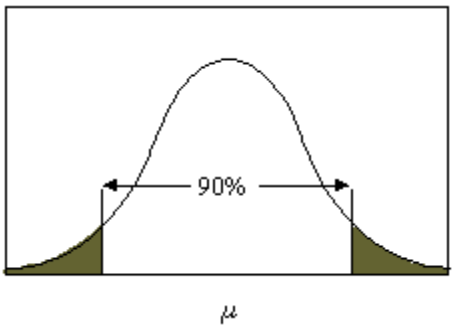
Name: _____ Date: _____

1. What value of $z_{\alpha/2}$ is used in confidence interval shown below?



2. According to a study of 90 truckers, a trucker drives, on average, 540 miles per day. If the standard deviation of the miles driven per day for the population of truckers is 40, find the 99% confidence interval of the mean number of miles driven per day by all truckers?

3. The formula for the confidence interval of the mean for a specific α is _____.

4. A food snack manufacturer samples 11 bags of pretzels off the assembly line and weighs their contents. If the sample mean is 15.2 oz. and the sample standard deviation is 0.40 oz., find the 95% confidence interval of the true mean.

5. The _____ are the number of values that are free to vary after a sample statistic has been computed.

6. If $\hat{p}$ is equal to 0.83, then $\hat{q}$ is equal to _____.

7. A survey of 800 women shoppers found that 17% of them shop on impulse. What is the 98% confidence interval for the true proportion of women shoppers who shop on impulse?

8. A quality control expert wants to estimate the proportion of defective components that are being manufactured by his company. A sample of 300 components showed that 20 were defective. How large a sample is needed to estimate the true proportion of defective components to within 2.5 percentage points with 99% confidence?

9. The area under each chi-square distribution is equal to _____.

10. The formula for the confidence interval for a standard deviation is _____.

11. Find the 95% confidence interval for the standard deviation of the lengths of pipes if a sample of 21 pipes has a standard deviation of 10.6 inches.

12. Find the values for χ^2_{left} and χ^2_{right} when α = .05 and n = 27.

Answer Key

1. 1.65
2. $529 < \mu < 551$
3. $\overline{X} - z_{\alpha/2}\left(\frac{\sigma}{\sqrt{n}}\right) < \mu < \overline{X} + z_{\alpha/2}\left(\frac{\sigma}{\sqrt{n}}\right)$
4. $14.9 < \mu < 15.5$
5. degrees of freedom
6. 0.17
7. $0.139 < p < 0.201$
8. 661
9. 1.00
10. $\sqrt{\frac{(n-1)s^2}{\chi^2_{\text{right}}}} < \sigma < \sqrt{\frac{(n-1)s^2}{\chi^2_{\text{left}}}}$
11. $8.1 < \sigma < 15.3$
12. 13.844 and 41.923