Chapter 9

Q1. The FPT university claims that 20% of its graduates are women. In a graduating class of 250 students, 60 were women. At [\alpha](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%5Calpha)= 0.05, does this suggest that the school is believable? Let *z*0.025 = 1.96 and *z*0.05 = 1.65.

Q2. The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test.

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| A.The error of failing to reject the claim that the mean temperature equals 45°F when it is really different from 45°F |
| B.The error of rejecting the claim that the mean temperature equals 45°F when it is really different from 45°F |
| C.The error of rejecting the claim that the mean temperature equals 45°F when it really does equal 45°F  Q3. Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.07 for a test *H*1: µ >µ0.  Q4. Carter Motor Company claims that its new sedan, the Libra, will average better than 70 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form.  Q5. An airline claims that the no-show rate for passengers is less than 3%. In a sample of 420 randomly selected reservations, 21 were no-shows. At [\alpha](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%5Calpha)= 0.01, compute the value of the test statistic to test the airline’s claim.  Q6. If you were constructing a 99% confidence interval of the population mean based on a sample of *n* = 12 where the standard deviation of the sample *s* = 3.25, the critical value of *t* will be  Q7. The width of a confidence interval estimate for a proportion will be  A. narrower for 99% confidence than for 98% confidence  B. wider for a sample size of 150 than for a sample size of 120  C. narrower when the sample proportion is 0.70 than when the sample proportion is 0.20  D. narrower for 90% confidence than for 99% confidence  Q8. The owner of a football team claims that the average attendance at games is over 79,000, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form.  A. H0: μ, the average attendance at games, is equal to 67,800 H1: μ, the average attendance at games, is greater than 67,800  B. H0: μ, the average attendance at games, is greater than 79,000 H1: μ, the average attendance at games, is less than or equal to 79,000  C. H0: μ, the average attendance at games, is equal to 79,000  H1: μ, the average attendance at games, is greater than 79,000  Q9. Suppose a 95% confidence interval for μ turns out to be (1000, 1900). Give a definition of what it means to be "95% confident" in an inference.  A. In repeated sampling, 95% of the intervals constructed would contain the population mean.  B. 95% of the observations in the entire population fall in the given interval  C. In repeated sampling, the population parameter would fall in the given interval 95% of the time  D. 95% of the observations in the sample fall in the given interval |