1. Suppose you wish to test H0: μ =50 versus HA: μ ≠ 50. The sample size is 17 and the value of the *t* - statistic is 2.82. The *p-value* of the test is:
2. Between 0.05 and 0.10
3. Between 0.025 and 0.05
4. Between 0.005 and 0.01
5. Between 0.01 and 0.02
6. We draw a large number of simple random samples of size 35 from a large population and use this information to find the sampling distribution of mean value. The resulting sampling distribution has a kurtosis of 5. This implies that:
7. We can conduct hypothesis testing on the mean value using the current sample of size 35.
8. In order to do hypothesis testing on the mean value, we must use a sample of size greater than 35.
9. It will not be possible to do hypothesis testing on the mean value with a sample of any size.
10. Since we are using simple random sampling, the kurtosis cannot be 5.

A private equity firm is considering purchasing a chain of retail clothing stores. Preliminary to the purchase, it has obtained data on the level of sales at 64 retail outlets of the chain. The data gives the sales in dollars per square foot per year. Inorder for the acquisition to be profitable, the stores must produce sales in excess of $380 per square foot annually.



1. If the company performs a break-even analysis of these data with α = 0.025, then it should conclude that the acquisition
2. Is definitely going to be profitable.
3. Has proven its profitability beyond reasonable doubt.
4. Has not proven its profitability.
5. Could be profitable if we are willing to increase the significance level of the test to 5%

(Q5-Q6) The owner of a Pizza delivery restaurant is concerned about meeting the delivery time target of 30 minutes. He has kept close track of the delivery times over a very long period and has found that they follow a normal distribution with mean of 25 minutes and standard deviation of 5 minutes.

1. On a particular day, he delivers 36 pizzas, of which 9 pizzas are delivered in more than 30 minutes. Which is the smallest level of significance at which the evidence is strong enough to believe that the process has changed?
2. 1%
3. 5%
4. 10%
5. 15%
6. Revisit the evidence described in Q5. Suppose the owner wanted to check if the pizza delivery process has become slower. Which is the smallest level of significance at which the evidence is strong enough to believe that the process has slowed down?
   1. 1%
   2. 5%
   3. 10%
   4. 15%

(Q7-Q8) A dean of college of business in the Midwest claims that he can correctly identify whether a student is finance major or a music industry management major by the way the student dresses. Suppose in actuality that he can correctly identify finance major 84% of the time, while 16% of the time he mistakenly identifies music industry management major as finance major. Presented with one student and asked to identify the major of this student (who is either a finance or music industry management major), the dean considers this to be a hypothesis test with the null hypothesis being that the student is finance major and the alternative that the student is a music industry management major.

1. Which of the following statements illustrates a Type I error?
   1. Saying that the student is music industry management major when in fact the student is finance major.
   2. Saying that the student is finance major when in fact the student is finance major.
   3. Saying that the student is finance major when in fact the student is music industry management major
   4. Saying that the student is music industry management major when in fact the student is music industry management major.
2. Which of the following statements illustrates a Type II error?
3. Saying that the student is music industry management major when in fact the student is finance major.
4. Saying that the student is finance major when in fact the student is finance major.
5. Saying that the student is finance major when in fact the student is music industry management major.
6. Saying that the student is music industry management major when in fact the student is music industry management major.

(Q9 – Q12) A firm that processes insurance claims monitors the length of time its agents spend to process each claim. The claims concern storm damages to homes. Homeowners call the firm, are connected to an agent, and the agent handles the administrative details. Based on prior experience, management believes that these calls require, on average, 20 minutes to resolve. Occasionally, some calls are considerably longer, or shorter. As a result the standard deviation is about 15 minutes. To monitor the process, 16 calls are randomly selected from phone records every day and their mean duration is recorded and charted as shown below. The process is deemed to be “running normal” if the daily mean duration falls between 12.50 and 27.50 (called upper and lower control limits).



1. The MOST APPROPRIATEsummary for management of the output indicates that the process
2. Is under control on Day 30 and an investigation, if conducted thoroughly, will reveal no problems
3. Can be deemed to be running normal throughout this period of 30 days
4. Might be actually running normal on Day 6 and even an exhaustive, error-free investigation might not lead to the identification of any systematic cause
5. Has a greater mean duration than that assumed by the management

1. If the system is operating in the fashion expected by management, the probability that the above chart signals a problem on a randomly chosen day is
2. 0.025
3. 0.05
4. 0.01
5. 0.0027
6. A training program of agents reduced the standard deviation of the call duration by half. Then, which of the following statements is most likely to be true?
7. Everything else remaining the same, the process will be deemed as running normal more often than before.
8. There will be less Type II errors now
9. The standard error of the mean will be higher than before.
10. There will be more Type-I errors now.
11. If the number of calls monitored each day is doubled (from 16 to 32), then the distance between the control limits in the chart would
12. become twice as large as shown
13. become half the size shown
14. become 71% of the size shown
15. remain the same as shown
16. We have created a 95% confidence interval for µ with the result (10, 15). What conclusion will we make if we test: µ = 16 versus *HA*: µ ≠ 16 at α = .05?
    1. Reject the null hypothesis
    2. Accept the null hypothesis
    3. Fail to reject the null hypothesis.
    4. Reject the alternative hypothesis.
17. A bottling plant fills a beverage in glass bottles. The weight of the beverage is normally distributed with mean 12 oz and standard deviation 0.15 oz. Sometimes, the bottling process goes out of order and the mean weight reduces to below 12 oz. The manager of the plant thinks that he can find outwhen this happens by doing a hypothesis test on the weight of a randomly selected bottle. However, his assistant, who has recently graduated with an MBA degree points out that it is better to select a simple random sample of 50 bottles and then do a hypothesis test usingthe sample mean. Which of the following is the MOST APPROPRIATE statement in this situation? The acceptable level of Type I error is 5%.
18. The threshold weight below which the null hypothesis that the process is working as designed is rejected, will be larger in the case of a single bottle than in the case of the sample of 50 bottles.
19. The assistant’s advice should be taken as it is not possible to do hypothesis testing on the weight of a single bottle
20. Both the methods proposed by the manager and his assistant will work in determining when the manufacturing process goes out of order
21. The method proposed by the assistant will work provided the sample size is increased to 100 to ensure that CLT can safely be taken to be applicable