**Minitest 1**

Topics:

* Population vs sample
* Descriptive statistics
* Confidence Intervals
* Hypothesis Testing

1. One hundred customers at a shopping mall are interviewed to determine whether they would purchase a television at a given price. Is the group of 100 customers a sample or a population?

Answer (highlight the correct answer)

* Parameter
* Statistic
* Population
* No correct answers

1. When does the median work better than the mean as a measure of the typical value in a group?

Type your answer (<100 characters)

When the sample size is large and doesn’t include outliers, the mean score usually provides a better measure of central tendency. The median provides better score in opposite situation.

1. Why do you need to know the variance of your daily sales figures if you are managing a firm?

Type your answer (<500 characters)

The sales volume variance for a product measures how much revenue the product brought in for the company based on actual sales volume, versus the revenue the company expected to make based on sales volume projections. The sales volume variance figures for your company's products can help you to make more accurate estimates of the amount of revenue products will bring in in the future.

1. If there were a sudden arrival of very tall people in your population, what would happen

Answer (type YES in the cell with correct answer)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | increased | decreased | no change | All cases might happen |
| to the mean? | yes |  |  |  |
| to the median? | yes |  |  |  |
| to the variance? |  |  |  | yes |

1. If you double the number of observations, will you be able to cut the width of the confidence interval in half?

Answer (highlight the correct answer)

* Yes
* No
* It depends on the initial number of observations

1. If you decided to accept the null hypothesis, can you be sure that it is really true?

Answer (highlight the correct answer)

* Yes
* No, there is always a possibility of committing a Type II error.
* No, there is always a possibility of committing a Type I error
* No, it depends on the significance level

1. Suppose you have found statistical evidence to reject the hypothesis that the population mean is equal to 7. Is it possible that the true value of mean may still be close to 7?

Answer (highlight the correct answer)

* Yes
* No, there is always a possibility of committing a Type II error.
* No, there is always a possibility of committing a Type I error
* No, it depends on the number of observations

1. A study finds that the 95% confidence interval estimate for the mean of a population ranges from 0.1 to 0.4. Which of the following statements are true?

Answer (highlight the correct answer)

* The probability that the true mean is 0 is less than 5%.
* There is a 95% probability that the true mean lies between 0.1 and 0.4.
* If we were to repeat the experiment many times, then 95% of the time the true mean lies between 0.1 and 0.4.
* All the statements are false.

1. You are given values for average and standard deviation for two samples of size n1 and n2. Test the hypothesis that the difference in the mean is equal to 0. Average1 =78, s1=3.9, n1=25. Average2 = 72, s2=3.9, n2=25.

9a) Choose a statistic which you use for testing hypothesis (highlight the correct answer)

* Z-statistic
* t-statistic
* F-statistic

9b) If the confidence level is 95%, a critical value of the chosen test (round up to **three decimals**)

2,064\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(type the answer)

9c) Test statistic is equal to (round up to **three decimals**)

1)4,2)3,692\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(type the answer)

9d) Your conclusion is (highlight the correct answer):

* We reject the null hypothesis
* We fail to reject the null hypothesis
* We need more information to make a conclusion
* Strong evidence for accepting the null hypothesis