

1. The owner of a travel agency would like to determine whether or not the mean age of the agency's customers is over 24. If so, he plans to alter the destination of their special cruises and tours. If he concludes the mean age is over 24 when it is not, he makes a _____ error. If he concludes the mean age is not over 24 when it is, he makes a _____ error

Ans – C

2. Suppose we wish to test $H_0: \mu = 53$ vs $H_1: \mu > 53$. What will result if we conclude that the mean is greater than 53 when its true value is really 55?

Ans – B

3. The value that separates a rejection region from an acceptance region is called a _____.

Ans – B

4. A hypothesis test is used to prevent a machine from under filling or overfilling quart bottles of beer. On the basis of sample, the machine is shut down for inspection. A thorough examination reveals there is nothing wrong with the filling machine. From a statistical point of view:

Ans – B

5. Suppose we wish to test $H_0: \mu = 21$ vs $H_1: \mu > 21$. Which of the following possible sample results gives the most evidence to support H_1 (i.e., reject H_0)? Hint: Compute Z-score

Ans – C

6. Given $H_0: \mu = 25$, $H_1: \mu \neq 25$, and $P\text{-value} = 0.041$. Do you reject or fail to reject H_0 at the 0.01 level of significance?

Ans – A

7. A bottling company needs to produce bottles that will hold 12 ounces of liquid. Periodically, the company gets complaints that their bottles are not holding enough liquid. To test this claim, the bottling company randomly samples 36 bottles. Suppose the p-value of this test turned out to be 0.0455. State the proper conclusion.

Ans – C

8. If a hypothesis test were conducted using $\alpha = 0.05$, for which of the following p-values would the null hypothesis be rejected?

Ans – B

9. For $H_1: \mu > \mu_0$ p-value is 0.042. What will be the p-value for $H_a: \mu < \mu_0$?

Ans – C

10. The test statistic is $t = 2.63$ and the p-value is 0.9849. What type of test is this?

Ans – C

11. The test statistic is $z = 2.75$, the critical value is $z = 2.326$. The p-value is ...

Ans – A

12. The area to the left of the test statistic is 0.375. What is the probability value if this is a left tail test?

Ans – B

13. What is T distribution and Z distribution?

Ans - The standard normal or z-distribution assumes that we know the population standard deviation. The t-distribution is based on the sample standard deviation

14. Is the T distribution normal?

Ans - The t-distribution is a type of normal distribution that is used for smaller sample sizes. Normally-distributed data form a bell shape when plotted on a graph, with more observations near the mean and fewer observations in the tails.

15. What does the T distribution tell us?

Ans - The t-distribution describes the standardized distances of sample means to the population mean when the population standard deviation is not known, and the observations come from a normally distributed population.