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| Question 11 of 20 | 1.0 Points |

The form of the alternative hypothesis can be:

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| A.one or two-tailed |  |
| B.neither one nor two-tailed |  |
| C.two-tailed |  |
| D.one-tailed |  |

Question 12 of 20

**Accepted characters**: numbers, decimal point markers (period or comma), sign indicators (-), spaces (e.g., as thousands separator, 5 000), "E" or "e" (used in scientific notation). **NOTE:** For scientific notation, a period MUST be used as the decimal point marker.

Complex numbers should be in the form (a + bi) where "a" and "b" need to have explicitly stated values.

For example: {1+1i} is valid whereas {1+i} is not. {0+9i} is valid whereas {9i} is not.

Suppose a firm that produces light bulbs wants to know whether it can say that its light bulbs typically last more than 1500 hours. Hoping to find support for their claim, the firm collects a random sample of n = 25 light bulbs and records the lifetime (in hours) of each bulb. The information related to the hypothesis test is presented below.

Test of H0:  1500 versus H1: > 1500

Sample mean 1509.5

Sample standard deviation 24.27

Assuming the life length of this type of lightbulb is normally distributed, if you wish to conduct this test using a .05 level of significance, what is the critical value that you should use? Place your answer, rounded to 3 decimal places in the blank. For example, 1.234 would be a legitimate entry.

Question 13 of 20

**Accepted characters**: numbers, decimal point markers (period or comma), sign indicators (-), spaces (e.g., as thousands separator, 5 000), "E" or "e" (used in scientific notation). **NOTE:** For scientific notation, a period MUST be used as the decimal point marker.

Complex numbers should be in the form (a + bi) where "a" and "b" need to have explicitly stated values.

For example: {1+1i} is valid whereas {1+i} is not. {0+9i} is valid whereas {9i} is not.

Suppose a firm that produces light bulbs wants to know whether it can say that its light bulbs typically last more than 1500 hours. Hoping to find support for their claim, the firm collects a random sample of n = 25 light bulbs and records the lifetime (in hours) of each bulb. The information related to the hypothesis test is presented below.

Test of H0:  1500 versus H1: > 1500

Sample mean 1509.5

Sample standard deviation 24.27

Assuming the life length of this type of lightbulb is normally distributed, what is the p-value associated with this test? Place your answer, rounded to 3 decimal places in the blank. For example, .123 would be a legitimate entry.

Question 14 of 20

**Accepted characters**: numbers, decimal point markers (period or comma), sign indicators (-), spaces (e.g., as thousands separator, 5 000), "E" or "e" (used in scientific notation). **NOTE:** For scientific notation, a period MUST be used as the decimal point marker.

A statistician wishes to test the claim that the standard deviation of the weights of firemen is greater than 25 pounds. To do so, she selected a random sample of 20 firemen and found s = 27.2 pounds.

Assuming that the weights of firemen are normally distributed, to test her research hypothesis the statistician would use a chi-square test. In that case, what is the computed test value?

Place your answer, rounded to 3 decimal places, in the blank. For example, 23.456 would be a legitimate entry.

Question 15 of 20

**Accepted characters**: numbers, decimal point markers (period or comma), sign indicators (-), spaces (e.g., as thousands separator, 5 000), "E" or "e" (used in scientific notation). **NOTE:** For scientific notation, a period MUST be used as the decimal point marker.

The ABC battery company claims that their batteries last at least 100 hours, on average. Your experience with their batteries has been somewhat different, so you decide to conduct a test to see if the company's claim is true. You believe that the mean life is actually less than the 100 hours the company claims. You decide to collect data on the average battery life (in hours) of a random sample of n = 20 batteries. Some of the information related to the hypothesis test is presented below.

Test of H0:   100 versus H1:   100

Sample mean 98.5

Std error of mean 0.777

Assuming the life length of batteries is normally distributed, if you wish to conduct this test using a .05 level of significance, what is the critical value that you should use?   Place your answer, rounded to 3 decimal places in the blank. For example, -1.234 would be a legitimate entry.

Question 16 of 20

**Accepted characters**: numbers, decimal point markers (period or comma), sign indicators (-), spaces (e.g., as thousands separator, 5 000), "E" or "e" (used in scientific notation). **NOTE:** For scientific notation, a period MUST be used as the decimal point marker.

A firm that produces light bulbs claims that their lightbulbs last 1500 hours, on average. You wonder if the average might differ from the 1500 hours that the firm claims. To explore this possibility you take a random sample of n = 25 light bulbs purchased from this firm and record the lifetime (in hours) of each bulb. You then conduct an appopriate test of hypothesis. Some of the information related to the hypothesis test is presented below.

Test of H0:  = 1500 versus H1:  1500

Sample mean 1509.5

Sample Standard Deviation 24.27

Assuming the life length of this type of lightbulb is normally distributed, what is the p-value associated with this test? Place your answer, rounded to 3 decimal places, in the blank. For example, 0.234 would be a legitimate entry.

Question 17 of 20

**Accepted characters**: numbers, decimal point markers (period or comma), sign indicators (-), spaces (e.g., as thousands separator, 5 000), "E" or "e" (used in scientific notation). **NOTE:** For scientific notation, a period MUST be used as the decimal point marker.

The CEO of a software company is committed to expanding the proportion of highly qualified women in the organization’s staff of salespersons. He believes that the proportion of women in similar sales positions across the country is less than 45%. Hoping to find support for his belief, he directs you to test

H0: p   .45 vs H1: p < .45.

In doing so, you collect a random sample of 50 salespersons employed by his company, which is thought to be representative of sales staffs of competing organizations in the industry. The collected random sample of size 50 showed that only 18 were women.

What is the smallest level of significance at which you could reject the null in favor of the alternative hypothesis? Place your answer, rounded to 4 decimal places, in the blank. For example, 0.1234 would be a legitimate entry.

Question 18 of 20

If a null hypothesis about a population mean is rejected at the 0.025 level of significance, then it must also be rejected at the 0.01 level.

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| True |
| False |

Question 19 of 20

A one-tailed alternative is one that is supported by evidence in either direction.

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| True |
| False |

Question 20 of 20

The probability of making a Type I error and the level of significance are the same.

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| True |
| False |