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| Question 10 of 17 | 1.0 Points |

**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. The marketing manager of a large supermarket chain would like to determine the effect of shelf space (in feet) on the weekly sales of international food (in hundreds of dollars). A random sample of 12 equal –sized stores is selected, with the following results:

|  |  |  |
| --- | --- | --- |
| Store | Shelf Space(X) | Weekly Sales(Y) |
| 1 | 10 | 2.0 |
| 2 | 10 | 2.6 |
| 3 | 10 | 1.8 |
| 4 | 15 | 2.3 |
| 5 | 15 | 2.8 |
| 6 | 15 | 3.0 |
| 7 | 20 | 2.7 |
| 8 | 20 | 3.1 |
| 9 | 20 | 3.2 |
| 10 | 25 | 3.0 |
| 11 | 25 | 3.3 |
| 12 | 25 | 3.5 |

Find the equation of the regression line for these data.  What is the value of the standard error of the estimate?  Place your answer, rounded to 3 decimal places, in the blank.  Do not use a dollar sign.  For example, 0.345 would be a legitimate entry.   |

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| Question 11 of 17 | 1.0 Points |

**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.  |

Data for a sample of 25 apartments in a particular neighborhood are provided in the worksheet Apartments in the Excel workbook Apartments.xlsx. Using the estimated regression equation found by using size as the predictor variable, find a point estimate for the average monthly rent for apartments having 1,000 square feet of space. Place your answer, **rounded to the nearest whole dollar**, in the blank.  When entering your answer do not use any labels or symbols. Simply provide the numerical value. For example, 123 would be a legitimate entry.

Question 12 of 17

**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.

Q-Mart is interested in comparing its male and female customers. Q-Mart would like to know if the amount of money spent by its female charge customers differs, on average, from the amount spent by its male charge customers.

To answer this question, an analyst collected random samples of 25 female customers and 22 male customers. Based on these samples, on average, the 25 women charge customers spent $102.23 and the 22 men charge customers spent $86.46. Moreover, the sample standard deviation of the amount charged by the 25 women was $93.393, and the sample standard deviation of the amount charged by the 22 men was $59.695.

Suppose, using a 10% level of significance, you wish to know if there is sufficient evidence for Q-Mart to conclude that, on average, the amount spent by women charge customers differs from the amount spent by men charge customers. That is suppose you wish to test

H0:  versus H1: 

Assuming that the amounts spent by female and male charge customers at Q-Mart are normally distributed, based on the procedure advocated by Bluman, what is/are the critical values that you would use to conduct this test of hypothesis? Place your answer, rounded to 3 decimal places, in the blank. If there are two critical values, place only the positive value in the blank. For example, 2.035 would be a legitimate entry.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Question 13 of 17 | 1.0 Points |

**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. Are America's top chief executive officers (CEOs) really worth all that money? One way to answer this question is to look at the annual company percentage increase in revenue versus the CEO's annual percentage salary increase in that same company. Suppose that a random sample of companies yielded the following data:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| percent change for corporation | 15 | 12 | 3 | 12 | 28 | 6 | 8 | 2 |
| percent change for CEO | 6 | 17 | -4 | 12 | 32 | -1 | 7 | 2 |

Do these data indicate that the population mean percentage increase in corporate revenue is greater than the population mean percentage increase in CEO salary? Use a 5% level of significance. What is the critical value that you would use to conduct this test of hypothesis? Place your answer, rounded to 3 decimal places, in the blank. For example, 2.345 would be a legitimate entry.  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Question 14 of 17 | 3.0 Points |

**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. A special coating is applied to several scale model engine nacelle body shapes to determine if it reduces the drag coefficient.  The following data are the drag coefficient before the coating is applied and after.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | #1 | #2 | #3 | #4 | #5 |  #6 |
| Before | 0.782 | 0.656 | 0.541 | 0.250 | 0.323 |  0.888 |
| After | 0.668 | 0.581 | 0.532 | 0.241 | 0.334 |  0.891 |

Perform a hypothesis test to determine if there is evidence at the 0.05 level of significance to support the claim that the coating reduces the drag coefficient. What is the test value for this hypothesis test?Answer: Round your answer to two decimal places.What is the P-value for this hypothesis test?Answer:    Round your answer to three decimal places.What is your conclusion for this test?  Choose one.1.  There is sufficient evidence to show the coating reduces the drag coefficient.2.  There is not sufficient evidence to show that the coating reduces the drag coefficient.3.  There is sufficient evidence to show that the drag coefficient changed after the coating was applied.4.  There is sufficient evidence to show that the drag coefficient increased after the coating was applied.Answer:    Enter only a 1, 2, 3 or 4 for your answer.Question 15 of 17When testing the equality of two population variances, the test statistic is the ratio of the population variances; namely  . |
| True |
| False |

Question 16 of 17

If there is no linear relationship between two variables X and Y, the coefficient of determination, R2, must be 1.0.

|  |
| --- |
| True |
| False |

Question 17 of 17

A simple linear regression equation is given by y' = 5 + 3x. The predicted value of Y when X = 3 is 5.

|  |
| --- |
| True |
| False |