STAT 200 Week 7 Homework

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2. The formula for a regression equation is Y’ = 2X + 9. a. What would be the predicted score for a person scoring 6 on X? b. If someone’s predicted score was 14, what was this person’s score on X?

6. For the X,Y data below, compute: a. r and determine if it is significantly different from zero. b. the slope of the regression line and test if it differs significantly from zero. c. the 95% confidence interval for the slope.

|  |  |
| --- | --- |
| x | y |
| 4 | 6 |
| 3 | 7 |
| 5 | 12 |
| 11 | 17 |
| 10 | 9 |
| 14 | 21 |

5. a. In a regression analysis, the sum of squares for the predicted scores is 100 and the sum of squares error is 200, what is R2?

b. In a different regression analysis, 40% of the variance was explained. The sum of squares total is 1000. What is the sum of squares of the predicted values?

14. True/false: If the slope of a simple linear regression line is statistically significant, then the correlation will also always be significant.

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70. The standard deviation of the chi-square distribution is twice the mean.

102. Do men and women select different breakfasts? The breakfasts ordered by randomly selected men and women at a popular breakfast place is shown in Table 11.55. Conduct a test for homogeneity at a 5% level of significance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | French Toast | Pancakes | Waffles | Omelletes |
| men | 47 | 35 | 28 | 53 |
| women | 65 | 59 | 55 | 60 |

Use the following information to answer the next twelve exercises: Suppose an airline claims that its flights are consistently on time with an average delay of at most 15 minutes. It claims that the average delay is so consistent that the variance is no more than 150 minutes. Doubting the consistency part of the claim, a disgruntled traveler calculates the delays for his next 25 flights. The average delay for those 25 flights is 22 minutes with a standard deviation of 15 minutes.

113. df = \_\_\_\_\_\_\_\_

117. Let α = 0.05 Decision: \_\_\_\_\_\_\_\_

Conclusion (write out in a complete sentence.): \_\_\_\_\_\_\_\_

Use the following information to answer the next four exercises: The average waiting time in a doctor’s office varies. The standard deviation of waiting times in a doctor’s office is 3.4 minutes. A random sample of 30 patients in the doctor’s office has a standard deviation of waiting times of 4.1 minutes. One doctor believes the variance of waiting times is greater than originally thought.

66. What is the test statistic?

82. The test to use to determine if a six-sided die is fair is a goodness-of-fit test.

True or false