ASO1 Introduction to Statistics for Research Version 1

Section: Science & Statistics • **Total Questions:** 10 • **Format:** Verified Q&A

1. A regression analysis was performed... The regression equation is y = 200.6 + 36.5x Which interpretation of this regression model is appropriate?

(A) An increase of 1 in the classroom size is associated with an increase in cost of $36.50.
(B) An increase of 1 in the classroom size is associated with an increase in cost of $200.60.
(C) An increase of 36.5 in the classroom size is associated with an increase in cost of $1.00.
(D) An increase of 200.6 in the classroom size is associated with an increase in cost of $1.00.

2. What is a chi-square test for homogeneity used to determine?

(A) Whether the paired mean differences for two populations are significantly different
(B) Whether there is a linear association between two quantitative variables
(C) Whether subgroups of a population have the same distribution
(D) Whether the categories for one qualitative variable differ significantly in their frequencies

3. Which variable is numerical?

(A) Food group in a study about the eating habits of professional athletes
(B) Diet in a study about food and cognitive functioning
(C) Screen color in a study about visual perception
(D) Skin temperature in a study about reactions to a new medical treatment

4. Consider the four normal distributions shown. What is the distribution with the greatest standard deviation?

(A) A
(B) B
(C) C
(D) D

5. What is one of the three assumptions of independent t-tests?

(A) Sampled populations have homogeneity of variance or equal variances.

(B) Individuals in the two samples can be meaningfully paired.

(C) The population samples have the same mean and standard deviation.

(D) There is overlap between the two larger populations.

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6. A researcher used a one-way classification to compare the reaction × of participants based on three conditions: stimulus A, stimulus B, and stimulus C. The researcher randomly selected 12 adults for each of the three conditions and then compared the resulting mean reaction ×. A one-way ANOVA provided an F-statistic of 0.185 and a critical F-value of 0.206.Which conclusion is appropriate for these results?

(A) At least one pairing of mean reaction × has a significant difference.

(B) There is a significant difference between all pairs of mean reaction ×.

(C) None of the mean reaction × are significantly different.

(D) Exactly one pair of mean reaction × has a significant difference.

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7. Data was collected on the scores on two tests. The resulting coefficient of determination is rï¿½ = 0.86. What is the correct interpretation of this value?

(A) The ratio of the variable y to the variable x is approximately 0.86.

(B) The variable x explains 86% of the variation in the variable y.

(C) The total variation in one variable is 86% of the variation in the other variable.

(D) The linear regression equation has a slope of 0.86 or -0.86.

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8. A researcher used a one-way classification to compare memory test performances of test participants based on three conditions: 8 hours of sleep, 6 hours of sleep, and 4 hours of sleep. The researcher randomly selected 20 adults for each of the three conditions and then compared the resulting mean scores. A one-way ANOVA provided an F-statistic of 0.381 and a critical F-value of 0.648.What is the appropriate conclusion?

(A) None of the mean scores are significantly different.

(B) At least one pairing of mean scores has a significant difference.

(C) There is a significant difference between all pairs of mean scores.

(D) Exactly one pair of mean scores has a significant difference.

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9. A researcher collected data on the preferences for the location of a major sporting event. The observed counts are: Location A: 310, B: 340, C: 350. Which value represents the degrees of freedom if a goodness-of-fit test is performed?

(A) 1

(B) 2

(C) 5

(D) 6

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10. A researcher collected data on the primary type of television programming watched based on education levels. The contingency table is as follows:Among respondents with only a high school diploma, 43 primarily watch news programming, 60 primarily watch reality TV, and 48 primarily watch other types of TV programming. Among respondents with an associate's degree, 29 primarily watch news programming, 58 primarily watch reality TV, and 58 primarily watch other types of TV programming. Among respondents with a bachelor's degree, 36 primarily watch news programming, 38 primarily watch reality TV, and 30 primarily watch other types of TV programming. ... Which test is used to determine if there is a significant difference among the categories of data?

(A) A Student's t-test

(B) A chi-square test for independence

(C) A chi-square test for homogeneity

(D) A goodness-of-fit test