

Statistics Quiz Answer Key PDF

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Which probability distribution is used to model the number of successes in a fixed number of independent Bernoulli trials?

- A. Normal distribution
- B. Poisson distribution
- C. Binomial distribution ✓**
- D. Exponential distribution

Which software is commonly used for statistical analysis and is known for its extensive library of packages?

- A. Excel
- B. SPSS
- C. R ✓**
- D. SAS

Which measure of dispersion is calculated as the square root of the variance?

- A. Range
- B. Interquartile range
- C. Standard deviation ✓**
- D. Mean absolute deviation

What is the primary purpose of using a scatter plot in data analysis?

- A. To show the distribution of a single variable
- B. To compare parts of a whole
- C. To visualize the relationship between two variables ✓**
- D. To display frequency distributions

What does a p-value less than 0.05 typically indicate in hypothesis testing?

- A. The null hypothesis is true
- B. The null hypothesis is rejected ✓**
- C. The test is inconclusive
- D. The alternative hypothesis is rejected

Which tests are used to compare means between groups? (Select all that apply)

- A. T-test ✓**
- B. ANOVA ✓**
- C. Chi-square test
- D. Kruskal-Wallis test ✓**

Explain the difference between descriptive and inferential statistics.

- A. Descriptive statistics summarize data ✓**
- B. Inferential statistics predict population parameters ✓**
- C. Descriptive statistics use sample data
- D. Inferential statistics describe data

Describe how a confidence interval is constructed and what it represents.

- A. It is a point estimate
- B. It represents a range of values ✓**
- C. It is always 100% accurate
- D. It is based on population data

What are the ethical considerations one must keep in mind when conducting statistical analysis?

- A. Data integrity ✓**
- B. Manipulation of data
- C. Confidentiality ✓**
- D. Bias in reporting ✓**

Which of the following are components of time series analysis? (Select all that apply)

- A. Trend analysis ✓**
- B. Seasonal adjustment ✓**
- C. Hypothesis testing
- D. Forecast ✓**

Discuss the importance of data visualization in statistics and provide examples of effective visualization techniques.

- A. It simplifies data interpretation ✓**
- B. It can mislead if not done correctly ✓**
- C. It is only useful for large data sets
- D. It replaces statistical analysis

How can multicollinearity affect the results of a multiple regression analysis?

- A. It improves model accuracy
- B. It inflates variance of estimates ✓**
- C. It has no effect on regression
- D. It simplifies interpretation

What are the steps involved in conducting a hypothesis test, and why is each step important?

- A. Define hypotheses ✓**
- B. Select significance level ✓**
- C. Calculate test statistic ✓**
- D. Ignore results

What is the measure of central tendency that represents the middle value in a data set?

- A. Mean
- B. Median ✓**
- C. Mode
- D. Range

Which of the following are types of sampling methods? (Select all that apply)

- A. Random sampling ✓**

- B. Stratified sampling ✓**
- C. Systematic sampling ✓**
- D. Convenience sampling ✓**

In hypothesis testing, what is the probability of rejecting the null hypothesis when it is true?

- A. Type I error ✓**
- B. Type II error
- C. Power of the test
- D. Confidence level

Which of the following are measures of central tendency? (Select all that apply)

- A. Mean ✓**
- B. Median ✓**
- C. Mode ✓**
- D. Variance

Which of the following is a non-parametric test?

- A. T-test
- B. ANOVA
- C. Chi-square test
- D. Mann-Whitneys U test ✓**

Which factors can affect the power of a statistical test? (Select all that apply)

- A. Sample size ✓**
- B. Significance level ✓**
- C. Effect size ✓**
- D. Data visualization

Which of the following are assumptions of linear regression? (Select all that apply)

- A. Linearity ✓**
- B. Homoscedasticity ✓**
- C. Multicollinearity

D. Normality of residuals ✓