

Fundamentals of Statistics

Statistics · Practice Test · 18 Questions

1. Which statistical measure represents the value that appears most frequently in a data set?

- A) Mean
- B) Median
- C) Mode
- D) Range

2. What is the term for the square root of the variance in a dataset?

- A) Standard deviation
- B) Interquartile range
- C) Coefficient of variation
- D) Mean absolute deviation

3. In a perfectly symmetrical normal distribution, what is the relationship between the mean, median, and mode?

- A) They are all different
- B) The mean is the highest
- C) The mode is the highest
- D) They are all equal

4. What does the 'p-value' in hypothesis testing represent?

- A) The probability of the null hypothesis being true
- B) The size of the effect
- C) The probability of observing results as extreme as the data, assuming the null hypothesis is true
- D) The margin of error

5. Which term describes the difference between the maximum and minimum values in a dataset?

- A) Variance
- B) Interquartile range
- C) Range
- D) Standard deviation

6. What is a 'Type I error' in statistical hypothesis testing?

- A) Failing to reject a false null hypothesis
- B) Rejecting a true null hypothesis
- C) Accepting an alternative hypothesis incorrectly
- D) The same as a Type II error

7. Who is often credited with the invention of the correlation coefficient, later refined by Karl Pearson?

- A) Francis Galton
- B) Ronald Fisher
- C) Thomas Bayes
- D) John Tukey

8. In descriptive statistics, what is the 'first quartile' (Q1) defined as?

- A) The 10th percentile
- B) The 25th percentile
- C) The 50th percentile
- D) The 75th percentile

9. Which type of data represents categories with no inherent mathematical order?

- A) Ordinal data
- B) Interval data
- C) Nominal data
- D) Ratio data

10. What is the sum of the deviations of a set of values from their mean always equal to?

- A) The mean
- B) One
- C) Zero
- D) The standard deviation

11. Which statistical chart uses a five-number summary (minimum, Q1, median, Q3, and maximum) to display data?

- A) Histogram
- B) Scatter plot
- C) Bar chart
- D) Box plot

12. What measure of central tendency is most sensitive to extreme outliers?

- A) Mean
- B) Median
- C) Mode
- D) Geometric mean

13. If a distribution is skewed to the right, which side has the longer tail?

- A) The left side
- B) The right side
- C) Neither side
- D) The middle

14. What is the name of the theorem that states the distribution of sample means will be approximately normal, regardless of the population distribution, given a large enough sample size?

- A) Law of Large Numbers
- B) Central Limit Theorem
- C) Bayes' Theorem
- D) Chebyshev's Inequality

15. In probability theory, what is the sum of the probabilities of all possible mutually exclusive outcomes in a sample space?

- A) Zero
- B) One
- C) The number of outcomes
- D) Infinity

16. What type of correlation indicates that as one variable increases, the other variable decreases?

- A) Positive correlation
- B) Zero correlation
- C) Negative correlation
- D) Perfect correlation

17. Which measure of dispersion is calculated by taking the average of the squared deviations from the mean?

- A) Standard deviation
- B) Variance
- C) Range
- D) Interquartile range

18. What is the term for a subset of a population used to collect data in a study?

- A) Parameter
- B) Census
- C) Sample
- D) Variable