

Advanced Statistical Literacy

Statistics · Answer Key · 15 Questions

1. In a normal distribution, what percentage of the data falls within three standard deviations of the mean?

- A) 95.4%
- B) 99.7%**
- C) 99.9%
- D) 95.0%

2. Which statistical term describes the extent to which a distribution's tail differs from the tails of a normal distribution?

- A) Skewness
- B) Kurtosis**
- C) Variance
- D) Covariance

3. What is the value of the sum of the deviations of a set of numbers from their arithmetic mean?

- A) The mean
- B) The variance
- C) Zero**
- D) The standard deviation

4. In hypothesis testing, what does a Type II error represent?

- A) Failing to reject a false null hypothesis**
- B) Rejecting a true null hypothesis
- C) Accepting a true alternative hypothesis
- D) Failing to reject a true null hypothesis

5. Which measure of central tendency is most resistant to outliers?

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

6. The Central Limit Theorem states that the distribution of sample means will approach a normal distribution under which condition?

- A) As sample size increases**
- B) As population variance decreases
- C) As the population becomes skewed
- D) As the number of outliers decreases

7. What is the range of a correlation coefficient (Pearson's r)?

- A) 0 to 1
- B) 0 to infinity
- C) -1 to 1**
- D) -100 to 100

8. In a perfectly symmetrical distribution, which of the following is true?

- A) Mean is greater than median
- B) Mean equals median**
- C) Median is greater than mode
- D) Mode is greater than mean

9. Which statistical concept describes the probability of observing a result at least as extreme as the one obtained, assuming the null hypothesis is true?

- A) Confidence interval
- B) Effect size
- C) P-value**
- D) Standard error

10. What does the 'degrees of freedom' generally represent in a statistical test?

- A) The number of independent values that can vary**
- B) The total sample size
- C) The number of outliers in a dataset
- D) The variance of the population

11. If a distribution is 'positively skewed', where is the tail located?

- A) To the left
- B) To the right**
- C) Centered
- D) The distribution has no tail

12. What is the square root of the variance called?

- A) Standard deviation**
- B) Mean deviation
- C) Range
- D) Interquartile range

13. Which of the following is a non-parametric test?

- A) T-test
- B) ANOVA
- C) Mann-Whitney U test**
- D) Z-test

14. What is defined as the probability of correctly rejecting a false null hypothesis?

A) Significance level

B) Power of a test

C) Confidence level

D) Alpha level

15. Which graph is used to visualize the distribution of a continuous variable?

A) Pie chart

B) Bar chart

C) Histogram

D) Scatter plot