

Midterm 2 Practice

2023-05-10

1. The mean and the median are always the same for any dataset. (False)
2. A p-value of 0.05 means there is a 5% chance that the null hypothesis is true. (False)We
3. A histogram is a type of bar chart. (False)
4. A scatterplot can be used to examine the relationship between two quantitative variables. (True)
5. A z-score is a measure of how many standard deviations a data point is from the mean. (True)
6. A Type I error occurs when we reject a null hypothesis that is actually true. (True)
7. The margin of error decreases as the sample size increases. (True)
8. The null hypothesis is always the hypothesis we want to prove. (False)
9. A confidence interval tells us the range of values within which the true population parameter is likely to fall. (True)
10. A random sample is a sample in which every member of the population has an equal chance of being selected. (True)
11. The correlation coefficient can range from -1 to 1. (True)
12. A boxplot can be used to display the five-number summary of a dataset. (True)
13. The coefficient of determination (R-squared) tells us the proportion of the variability in the response variable that can be explained by the explanatory variable. (True)
14. A Type II error occurs when we fail to reject a null hypothesis that is actually false. (True)
15. The standard deviation is always greater than or equal to the variance. (False)
16. The null hypothesis is a statement of no effect or no difference. (True)
17. A histogram is a graph of a probability distribution. (False)
18. A confidence level of 95% means we are 95% certain that the population parameter falls within the confidence interval. (True)
19. A skewed distribution has the same mean and median. (False)
20. A sample statistic is always equal to the population parameter. (False)
21. A Type I error is also known as a false positive. (True)
22. The central limit theorem tells us that the sampling distribution of the mean approaches a normal distribution as the sample size increases. (True)
23. The standard deviation is a measure of spread that is resistant to outliers. (False)
24. A confidence interval widens as the sample size increases. (False)

25. A Type II error is also known as a false negative. (True)
26. The interquartile range (IQR) is a measure of spread that is resistant to outliers. (True)
27. A p-value is the probability of observing a test statistic as extreme or more extreme than the observed test statistic, assuming the null hypothesis is true. (True)
28. A scatterplot can be used to identify outliers. (True)
29. A standard normal distribution has a mean of 0 and a standard deviation of 1. (True)
30. A confidence interval can be used to test a hypothesis. (True)
31. A Type I error is also known as a level of significance. (False)
32. The correlation coefficient measures the strength of the linear relationship between two variables, but it does not tell us anything about causation. (True)
33. A hypothesis test is a procedure for testing a claim or hypothesis about a population parameter. (True)
34. The standard error is a measure of how much the sample mean varies from sample to sample. (True)
35. The central limit theorem tells us that the sampling distribution of the mean is always normal, regardless of the sample size. (False)
36. A Type II error is also known as a power of the test. (False)
37. The t-distribution is used to test hypotheses about population means when the population standard deviation is unknown. (True)
38. A probability distribution is a function that describes the likelihood of different outcomes in a random process. (True)
39. The null hypothesis is always the hypothesis we believe to be true. (False)
40. A Type I error is also known as a reject error. (True)
41. A hypothesis test can only tell us if there is a statistically significant difference, but not the magnitude of the difference. (True)
42. A sample mean is a statistic that estimates the population mean. (True)
43. The t-distribution approaches the standard normal distribution as the sample size increases. (True)