ARKANSAS STATISTICS · FINAL EXAM · 50 QUESTIONS

Final Exam — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The data values in order are 3, 7, 9, 12, and 20 The median of the data is**

A 7

B 9

C 12

D 20

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2 **A fair six sided die is rolled once The probability of rolling an even number is**

A 0.17

B 0.33

C 0.67

D 0.5

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3 **A number computed from sample data is called a**

A Parameter

B Statistic

C Population

D Census

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4 **In a regression line, the intercept is the predicted value of y when x equals**

- A 1
- B The slope
- C The mean
- D 0

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5 **The smallest value is 5 and the largest value is 28 The range of the data is**

- A 23
- B 28
- C 33
- D 5

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6 **A bag has 3 red balls and 7 blue balls One ball is drawn at random The probability it is red is**

- A 0.7
- B 0.5
- C 0.3
- D 0.1

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7 **A population standard deviation is 20 and the sample size is 25 The standard error of the sample mean is 20 / 5 The standard error is**

- A 2
- B 4
- C 5
- D 10

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8 **A coefficient of determination of 0.64 means about 64 percent of the variation in y is**

- A Caused by x
- B Due to outliers
- C Unexplained
- D Explained by the linear relationship with x

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9 **A data set has a large outlier much larger than the other values The outlier will pull the mean**

- A Downward strongly
- B To the median exactly
- C Not at all
- D Upward strongly

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10 **The probability of A is 0.4 and the probability of both A and B is 0.12 The probability of B given A is**

- A 0.48
- B 0.3
- C 0.12
- D 0.52

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11 **Increasing the confidence level from 90 percent to 99 percent, with the same sample The interval becomes**

- A Wider
- B Narrower
- C Unchanged
- D Centered at zero

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12 **An observed value is 30 and the predicted value is 27 The residual is**

- A -3
- B 57
- C 3
- D 0.9

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13 **In a boxplot, the line inside the box marks the**

- A Mean
- B Mode
- C Median
- D Maximum

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14 **A game pays 20 dollars with probability 0.1 and 0 dollars otherwise The expected value of the game is**

- A 2 dollars
- B 0.5 dollars
- C 10 dollars
- D 20 dollars

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15 **A p value is the probability of data at least as extreme as observed, assuming the**

- A Alternative hypothesis is true
- B Sample is biased
- C Effect is large
- D Null hypothesis is true

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16 **A strong correlation between two variables does not by itself prove**

A Association

B Causation

C A pattern

D A trend

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17 **A test score is 78, the mean is 70, and the standard deviation is 4 The z score of the test score is**

A 1

B 2

C 4

D 8

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18 **A binomial experiment has 100 trials with success probability 0.5 The standard deviation is the square root of 25 The standard deviation is**

- A 2.5
- B 10
- C 25
- D 5

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19 **A Type 2 error occurs when a false null hypothesis is**

- A Rejected
- B Proven
- C Ignored
- D Not rejected

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20 **In a double blind experiment, neither the subjects nor the**

- **A** Population knows the study exists
- **B** Researchers measuring the response know who received the treatment
- **C** Control group is measured
- **D** Treatment group is counted

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21 **For a normal distribution, about 95 percent of values lie within**

- **A** 2 standard deviations of the mean
- **B** 1 standard deviation of the mean
- **C** 3 standard deviations of the mean
- **D** The interquartile range

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22 **As the number of trials grows, the observed proportion tends toward the true probability This is the law of**

- A Small numbers
- B Averages only
- C Large numbers
- D Independence

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23 **A sample proportion is 0.5 with a sample size of 100 The standard error is the square root of 0.25 / 100 The standard error is**

- A 0.025
- B 0.25
- C 0.05
- D 0.5

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24 **Blocking in an experiment groups similar subjects together before random assignment in order to**

- A Reduce variation within groups
- B Increase bias
- C Remove the control group
- D Double the sample size

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25 **The mean of a data set is 40 and the median is 32 The distribution is most likely**

- A Skewed right
- B Skewed left
- C Symmetric
- D Bimodal only

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26 **The probability of a certain event is**

A 0

B 0.5

C 1

D 2

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27 **The graph shows margin of error falling as sample size grows Quadrupling the sample size roughly**

A Doubles the margin of error

B Halves the margin of error

C Leaves the margin unchanged

D Quadruples the margin of error

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28 **A lurking variable is a variable not included in the study that may**

A Have no effect

B Increase the sample size

C Make the correlation zero

D Affect the relationship between the variables studied

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29 **The smallest value is 18 and the largest value is 93 What is the range**

ANSWER _____

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30 **An event has probability 0.15 What is the probability that the event does not happen**

ANSWER _____

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31 **A sample of 200 voters is taken from all voters in a state The state voters are the**

- A Sample
- B Population
- C Statistic
- D Parameter

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32 **In a regression line, a slope of -1.5 means that for each increase of 1 in x The predicted y decreases by**

- A 1
- B 0.5
- C 15
- D 1.5

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33 **The data values in order are 5, 11, 14, 19, and 26 The median of the data is**

- A 11
- B 19
- C 14
- D 26

Understand It with Pulse | Flag a mistake

34 **An event has probability 0.8 The probability that the event does not happen is**

- A 0.2
- B 0.8
- C 1.8
- D 0.08

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35

A confidence interval that is narrower gives

A More precision but less confidence if the level falls

B Less precision

C No information

D A larger margin

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36

A correlation coefficient of 0.3 indicates a

A Strong positive association

B Strong negative association

C Weak positive association

D Perfect association

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37 The first quartile is 30 and the third quartile is 52 The interquartile range is

- A 30
- B 22
- C 52
- D 82

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38 The probability of A is 0.6, the probability of B is 0.3, and the probability of both is 0.1 The probability of A or B is

- A 0.9
- B 0.2
- C 1.0
- D 0.8

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39 **The significance level is the probability of a Type 1 error that the researcher is willing to**

A Avoid completely

B Ignore

C Double

D Accept

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40 **An experiment differs from an observational study because in an experiment the researcher**

A Observes without interfering

B Imposes a treatment

C Uses a larger sample

D Avoids all bias

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41 **A value is at the 25th percentile This means about 25 percent of values are**

- A At or below it
- B Above it
- C Equal to the mean
- D Unrelated to it

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42 **A game pays 50 dollars with probability 0.2 and 0 dollars otherwise The expected value of the game is**

- A 5 dollars
- B 20 dollars
- C 10 dollars
- D 50 dollars

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43 **Cluster sampling samples whole groups that are**

A Identical in size only

B Volunteers

C Strata

D Chosen at random

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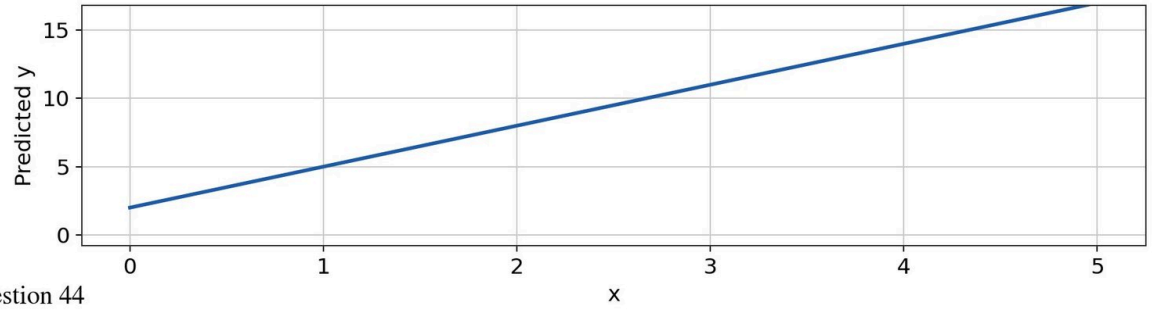
44

The graph shows a regression line with equation predicted y = 3x + 2 For x = 4 , the predicted y is



Question 44

The graph shows *a* regression line with equation predicted $y = 3x + 2$ For $x = 4$, the predicted y is

A) 12

B) 14

C) 10

D) 18

A 12

B 14

C 10

D 18

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45 **In a left skewed distribution the mean is usually**

A Greater than the median

B Equal to the mode exactly

C Greater than the maximum

D Less than the median

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46 **Sampling with replacement keeps the probability the same on each draw because the item is**

A Removed

B Returned before the next draw

C Changed

D Counted twice

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47 **A sample mean is 44 , the population mean under the null hypothesis is 40 , and the standard error is 2 The test statistic is $\frac{4}{2}$ The test statistic is**

- A 0.5
- B 1
- C 2
- D 4

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48 **An explanatory variable is the variable that may**

- A Explain or influence the response
- B Be the outcome measured
- C Have no role
- D Always be categorical

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49 **A bar chart is best for displaying**

- A A normal distribution only
- B A z score
- C A categorical variable
- D A correlation

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50 **A probability tree for two coin tosses has how many final outcomes**

- A 4
- B 2
- C 3
- D 6

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ANSWER KEY

1. B
2. D
3. B
4. D
5. A
6. C
7. B
8. D
9. D
10. B
11. A
12. C
13. C
14. A
15. D
16. B
17. B
18. D
19. D
20. B
21. A
22. C
23. C
24. A
25. A
26. C
27. B
28. D
29. 75
30. 0.85
31. B
32. D
33. C
34. A
35. A
36. C
37. B
38. D
39. D
40. B
41. A
42. C
43. D
44. B
45. D
46. B
47. C
48. A
49. C
50. A

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