ARIZONA 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 median of 5, 9, 13, 17, 21, 25 is**

- A 13
- B 17
- C 15
- D 21

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2 **Two events are independent if**

- A they always happen together
- B their probabilities add to 1
- C they cannot both happen
- D one does not change the probability of the other

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3 **A number describing a whole population is called a**

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

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4 **The regression line is $\hat{y} = 3x - 2$. The predicted value of y when x = 7 is**

ANSWER _____

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5 For the data 2, 4, 6, 8, 10, 12, 14, 16, the interquartile range is

- **A** 5
- **B** 13
- **C** 8
- **D** 10

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6 The probability of at least one head in 3 fair coin flips is

- **A** $\frac{1}{2}$
- **B** $\frac{3}{4}$
- **C** $\frac{7}{8}$
- **D** $\frac{1}{8}$

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7 **The central limit theorem says that for large samples, the sampling distribution of the sample mean is approximately**

- A Normal
- B Uniform
- C Skewed
- D Bimodal

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8 **An observed value is 42 and the predicted value is 38. What is the residual?**

ANSWER _____

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9 In a normal distribution with mean 100 and standard deviation 10, a value 2 standard deviations above the mean is

- **A** 80
- **B** 90
- **C** 110
- **D** 120

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10 A bag has 5 red marbles and 5 blue marbles. Two are drawn without replacement. The probability both are red is

- **A** $\frac{1}{4}$
- **B** $\frac{2}{9}$
- **C** $\frac{1}{9}$
- **D** $\frac{1}{2}$

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11 **A 95% confidence interval means that in repeated sampling, about 95% of intervals built this way would contain the true parameter. This is**

A The probability the parameter is in this interval

B The significance level

C The correct interpretation

D The probability the sample is correct

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12 **If r = 0.8, then r^2 is**

ANSWER _____

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13 **The standard deviation measures**

A The largest minus the smallest value

B The middle value of a data set

C The most common value

D Spread around the mean

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14 **In a group of 50 students, 28 take math and 22 take science, with 10 taking both The number who take neither subject is**

ANSWER _____

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15 **A sample mean is 50 with a standard error of 2. An approximate 95% confidence interval is**

- A 44 to 56
- B 48 to 52
- C 50 to 54
- D 46 to 54

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16 **The least squares line is chosen to minimize the sum of squared**

- A Observed values
- B Predicted values
- C Residuals
- D Slopes

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17 **An extreme outlier will usually affect the mean more than the**

A Median

B Range

C Mode

D Maximum

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18 **The probability of rain on a day is 0.25. The probability of no rain that day is**

A 0.25

B 1.25

C 0.75

D 0.025

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19 **The null hypothesis usually states that there is**

A A large effect

B A proven effect

C A biased sample

D No effect or no difference

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20 **Blocking groups subjects by a known source of variation before random assignment. Its purpose is to**

A Remove the control group

B Increase bias

C Hide treatments

D Reduce variation within groups

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21 **In a class of 40 students, 12 prefer hiking. What is the relative frequency of hiking as a decimal?**

ANSWER

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22 **If P(A) = 0.4 and P(B) = 0.5 and A and B are independent, then P(A and B) is**

A 0.9

B 0.2

C 0.1

D 0.45

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23 **An observed mean is 66, the null mean is 60, and the standard error is 3. What is the test statistic z?**

ANSWER

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24 **The graph shows a regression line. The predicted value when x = 20 is**

- A 9
- B 11
- C 13
- D 21

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25 **The mode of 7, 7, 3, 9, 7, 3 is**

- A 7
- B 3
- C 9
- D 6

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26 **The probability of exactly 1 head in 4 fair coin flips, as a decimal, is**

ANSWER _____

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27 **For a small sample from a normal population with unknown standard deviation the usual test uses the**

A Chi square distribution

B Uniform distribution

C z distribution

D t distribution

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28 **Randomly assigning subjects to treatments helps to balance out**

- A Lurking variables
- B Sample size
- C Response variables
- D Measurement error only

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29 **The height of each student in centimeters is an example of**

- A Quantitative data
- B Categorical data
- C A parameter
- D A bias

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30 **The sample space for rolling one fair die has how many outcomes?**

A 2

B 6

C 12

D 36

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31 **A significance level of 0.05 means the chance of a Type I error is at most**

A 0.95

B 0.05

C 0.5

D 0.01

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32 The regression line is $\hat{y} = 5 - 0.5x$. The predicted value of y when x = 6 is

ANSWER

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33 The range of 11, 19, 27, 35 is

A 11

B 35

C 24

D 19

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34 The number of combinations of 4 members chosen from 9 is

- A 126
- B 3024
- C 36
- D 84

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35 A test for a proportion needs both np and n(1-p) to be at least

- A 5
- B 10
- C 30
- D 100

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36 **A residual plot with points scattered randomly around zero suggests the linear model fits**

A Only for large x

B Well

C Not at all

D Poorly

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37 **Which display is best for showing the shape of a quantitative distribution?**

A A histogram

B A pie chart

C A bar chart of categories

D A two way table

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38 **A fair coin is flipped until the first head appears The probability the first head is on the third flip is**

ANSWER

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39 **A statistically significant result may still be too small to matter in practice This is the difference between statistical and**

A Practical significance

B Random significance

C Sample significance

D Population significance

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40 **Random sampling chooses who is in a study. Random assignment chooses**

A The sample size

B Who gets which treatment

C The response variable

D Who is in the study

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41 **The graph shows daily high temperatures in Phoenix over five days The highest temperature shown is**

A 95

B 100

C 105

D 110

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42 **A bag has 6 green marbles and 4 yellow marbles. Two are drawn without replacement. The probability of green then yellow is**

- **A** $\frac{4}{15}$
- **B** $\frac{2}{5}$
- **C** $\frac{1}{3}$
- **D** $\frac{8}{15}$

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43 **Random sampling is needed for inference mainly to avoid**

- **A** Large samples
- **B** Variation
- **C** Bias
- **D** Confidence

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44 **A matched pairs design pairs similar subjects and gives each pair**

A The same treatment

B No treatment

C A placebo only

D Different treatments

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45 **A distribution is skewed left. The mean is usually**

A Less than the median

B Greater than the median

C Equal to the median

D Equal to zero

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46 **The probability of an event is 0.8. The probability it does not happen is**

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

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47 **The standard error of a mean gets smaller when the sample size**

- A Gets smaller
- B Gets larger
- C Stays the same
- D Becomes zero

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48 **A correlation of 0 means there is no linear relationship It does NOT rule out a**

A Nonlinear relationship

B Positive relationship

C Linear relationship

D Negative relationship

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49 **If every value in a data set doubles, the mean**

A Stays the same

B Doubles

C Halves

D Becomes zero

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50 **If P(A) = 0.6, then P(not A) is**

A 1.6

B 0.6

C 0.06

D 0.4

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ANSWER KEY

1.	C	**18.**	C	**35.**	B
2.	D	**19.**	D	**36.**	B
3.	D	**20.**	D	**37.**	A
4.	19	**21.**	0.3	**38.**	0.125
5.	C	**22.**	B	**39.**	A
6.	C	**23.**	2	**40.**	B
7.	A	**24.**	B	**41.**	C
8.	4	**25.**	A	**42.**	A
9.	D	**26.**	0.25	**43.**	C
10.	B	**27.**	D	**44.**	D
11.	C	**28.**	A	**45.**	A
12.	0.64	**29.**	A	**46.**	C
13.	D	**30.**	B	**47.**	B
14.	10	**31.**	B	**48.**	A
15.	D	**32.**	2	**49.**	B
16.	C	**33.**	C	**50.**	D
17.	A	**34.**	A		

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