CALIFORNIA STATISTICS · UNIT 4 · 25 QUESTIONS

Regression, Experiments, and Categorical Data — 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 **A correlation of r = 0.9 indicates a**

- A weak association
- B strong negative linear association
- C no association
- D strong positive linear association

Understand It with Pulse | Flag a mistake

2 **A regression line is $\hat{y} = 5 + 2x$. For $x = 10$, the predicted y is**

- **A** 20
- **B** 7
- **C** 15
- **D** 25

Understand It with Pulse | Flag a mistake

3 **Observed $y = 30$, predicted $y = 25$. The residual is**

- **A** 55
- **B** 0.83
- **C** -5
- **D** 5

Understand It with Pulse | Flag a mistake

4 **A confounding variable is one that is related to both the explanatory variable and the**

A placebo

B response variable

C graph

D sample size

Understand It with Pulse | Flag a mistake

5 **A control group in an experiment is used to**

A choose the sample

B receive no treatment or a placebo

C set the sample size

D hide the results

Understand It with Pulse | Flag a mistake

6

A lurking variable is

A measured in the study

B the response variable

C the explanatory variable

D not measured but affecting the response

Understand It with Pulse | Flag a mistake

7

A placebo is

A a confounding variable

B a fake treatment with no active effect

C a biased sample

D the real treatment

Understand It with Pulse | Flag a mistake

8 **A residual plot with no clear pattern suggests the linear model is**

A nonlinear always

B biased always

C reasonable

D useless always

Understand It with Pulse | Flag a mistake

9 **A scatterplot with points falling from left to right shows a**

A perfect causation

B positive association

C no association

D negative association

Understand It with Pulse | Flag a mistake

10 **A scatterplot with points rising from left to right shows a**

- A negative association
- B no association
- C positive association
- D perfect causation

Understand It with Pulse | Flag a mistake

11 **An experiment can support a causal claim better than an observational study because it**

- A has no control group
- B assigns treatments randomly
- C uses larger graphs
- D ignores confounders

Understand It with Pulse | Flag a mistake

12 **An observational study observes subjects without**

A collecting data

B using a sample

C assigning treatments

D measuring outcomes

Understand It with Pulse | Flag a mistake

13 **Blinding in an experiment helps reduce**

A sample size

B placebo effects and bias

C variation to zero

D correlation

Understand It with Pulse | Flag a mistake

14 **Categorical data are best summarized with**

A means and standard deviations

B regression lines

C histograms only

D counts and proportions

Understand It with Pulse | Flag a mistake

15 **Correlation alone does not prove**

A causation

B linearity

C association

D variation

Understand It with Pulse | Flag a mistake

16 **Extrapolation means predicting outside the range of the**

A confidence level

B observed x values

C sample size

D observed y values only

Understand It with Pulse | Flag a mistake

17 **In a two way table, a marginal distribution gives totals for**

A no variable

B both variables jointly

C the sample size only

D one variable only

Understand It with Pulse | Flag a mistake

18 In a two way table with counts 15 and 25 in a column, the column total is

ANSWER _____

Understand It with Pulse | Flag a mistake

19 In a two way table with counts 12 and 28 in a row, the row total is

ANSWER _____

Understand It with Pulse | Flag a mistake

20 In $\hat{y} = 5 + 2x$, the intercept is

A 10

B 7

C 5

D 2

Understand It with Pulse | Flag a mistake

21 **A correlation of r = -0.8 indicates a**

- A weak association
- B strong positive linear association
- C strong negative linear association
- D no association

Understand It with Pulse | Flag a mistake

22 **A regression line is $\hat{y} = 20 - 3x$. For x = 4, the predicted y is**

- A 32
- B 8
- C 23
- D 12

Understand It with Pulse | Flag a mistake

23 **Observed y = 18, predicted y = 22. The residual is**

- A 40
- B 4
- C 0.82
- D -4

Understand It with Pulse | Flag a mistake

24 **A correlation of r = 0.2 indicates a**

- A strong linear association
- B negative association
- C weak linear association
- D perfect association

Understand It with Pulse | Flag a mistake

25 **A regression line is $\hat{y} = 10 + 4x$. For $x = 5$, the predicted y, is**

ANSWER

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	D	**10.**	C	**19.**	40
2.	D	**11.**	B	**20.**	C
3.	D	**12.**	C	**21.**	C
4.	B	**13.**	B	**22.**	B
5.	B	**14.**	D	**23.**	D
6.	D	**15.**	A	**24.**	C
7.	B	**16.**	B	**25.**	30
8.	C	**17.**	D		
9.	D	**18.**	40		

© 2026 Brett Robbins. All Rights Reserved.