ARKANSAS STATISTICS · UNIT 4 · 25 QUESTIONS

Regression and Experiments — 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 **In a regression line, a slope of 2.5 means that for each increase of 1 in x The predicted y increases by**

- A 2.5
- B 1
- C 25
- D 0.4

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2 **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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3 **A correlation coefficient of 0.9 indicates a**



A Strong positive association

B Weak negative association

C Weak positive association

D Strong negative association

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4 **A correlation coefficient of -0.8 indicates a**

A Weak positive association

B Strong negative association

C Weak negative association

D Strong positive association

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5 **A correlation coefficient near 0 indicates a**

A Strong association

B Perfect association

C Weak linear association

D Causal association

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6 **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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7 **A regression equation is predicted y = 10 + 3x For x = 4 , the predicted y is**



A 22

B 13

C 34

D 40

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8 **A regression equation is predicted y = 7 + 2x For x = 5 , the predicted y is**

A 12

B 17

C 22

D 35

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9 **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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10 **A residual is negative when the observed value is**

- A Above the predicted value
- B Equal to the predicted value
- C Zero
- D Below the predicted value

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11 **Using a regression line to predict far outside the range of observed x values is called**

- A Extrapolation
- B Interpolation
- C Correlation
- D Residual analysis

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12 **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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13 **In an experiment, the control group**



A Receives the treatment

B Is not measured

C Does not receive the treatment

D Chooses its own treatment

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14 **Random assignment in an experiment helps to**

A Create a random sample of the population

B Increase the sample size

C Guarantee causation

D Balance confounding variables across groups

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15 **A placebo is a treatment with no active ingredient, used so that the effect of**

A Being treated can be separated from the active treatment

B The sample size can grow

C Random sampling works

D Blinding is unnecessary

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16 **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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17 **A confounding variable is a variable that is related to both the explanatory variable and the**

A Sample size

B Intercept

C Response variable

D Residual

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18 **An observational study can show association but usually cannot establish causation because the researcher**



A Has too small a sample

B Uses no control group ever

C Cannot measure the response

D Does not impose a treatment

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19 **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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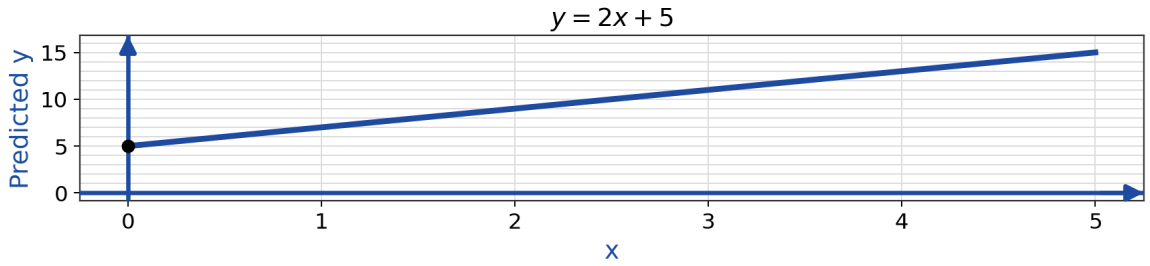
20 **The graph shows a regression line with equation predicted y = 2x + 5 For x = 3 , the predicted y is**



A 6

B 11

C 15

D 21

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

A Negative association

B No association

C Positive association

D Perfect vertical line

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22 **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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23 **Matched pairs design pairs subjects that are similar and then**



A Randomly assigns one of each pair to each treatment

B Assigns both to the same treatment

C Removes the control group

D Uses no randomization

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24 **A regression equation is predicted y = 5 + 4x For x = 6 , what is the predicted y**

ANSWER

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25 **A correlation coefficient is 0.8 What is the coefficient of determination**

ANSWER

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ANSWER KEY

1.	A	**10.**	D	**19.**	A
2.	D	**11.**	A	**20.**	B
3.	A	**12.**	B	**21.**	C
4.	B	**13.**	C	**22.**	D
5.	C	**14.**	D	**23.**	A
6.	D	**15.**	A	**24.**	29
7.	A	**16.**	B	**25.**	0.64
8.	B	**17.**	C		
9.	C	**18.**	D		

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