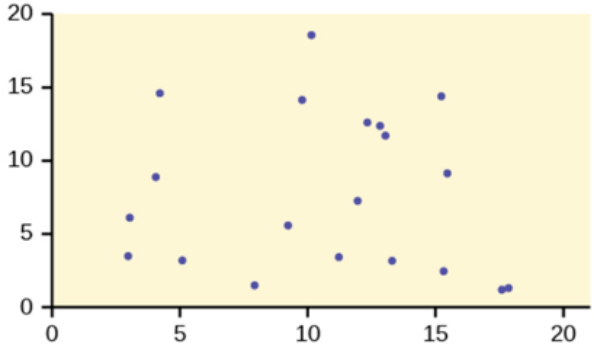
Time left 1:29:53

Question 1

Not yet answered

Marked out of 1.00

A scatterplot of X and Y variables is provided below. Describe the relationship between X and Y



- a. there is a strong positive linear relationship between X and Y.
- b. there is a strong negative linear relationship between X and Y.
- c. there is no linear relationship between X and Y.
- d. there is a linear relationship between X and Y.

Question 2

Not yet answered

Marked out of 1.00

A hypothesis test is conducted with an α=0.05. What is the probability of type I error?

- a. 0.01
- b. 0
- c. 0.05
- d. 0.04

Question 3

Not yet answered

Marked out of 1.00

A company claims that their new product increases customer satisfaction. To test this claim, a survey is conducted, and a sample of 50 customers who purchased the new product is selected. The average satisfaction rating in the sample is found to be 7.5. Assuming a significance level of 0.05, what would be the appropriate null and alternative hypotheses for testing the company's claim?

- a. H0: Average satisfaction = 7.5 Ha: Average satisfaction ≠ 7.5
- b. H0: Average satisfaction ≥ 7.5 Ha: Average satisfaction < 7.5
- c. H0: Average satisfaction ≤ 7.5 Ha: Average satisfaction > 7.5
- d. H0: Average satisfaction ≥ 7.5 Ha: Average satisfaction > 7.5

Question 4

Not yet answered

Marked out of 1.00

In a statistical hypothesis test, the p-value represents the probability of obtaining the observed test statistic or a more extreme result, assuming that the null hypothesis is true.

- a. True
- b. False

Question 5

Not yet answered

Marked out of 1.00

In any given scenario, which confidence interval will be narrower?

- a. 80% confidence interval
- b. 91% confidence interval
- c. 99% confidence interval
- d. 82% confidence interval

Question 6

Not yet answered

Marked out of 1.00

Given the data below, compute the chi-square (X^2)

	Col1	Col2	Total
Row1	100	150	250
Row2	200	50	250
Total	300	200	500

- a. 83.34
- b. 100.34
- c. 93.93
- d. 102.33

Question 7

Not yet answered

Marked out of 1.00

You are committing a Type III error if you fail to reject H0 when H0 is false?

- True
- False

Question 8

Not yet answered

Marked out of 1.00

In the context of multiple regression, the coefficient β1 represents the predicted value of the response variable Y.

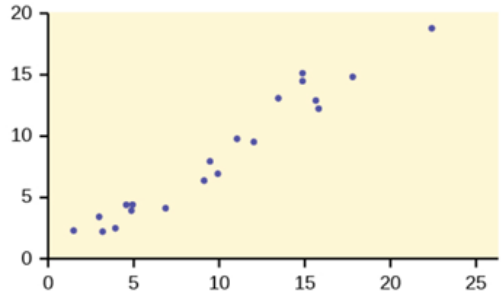
- a. True
- b. False

Question 9

Not yet answered

Marked out of 1.00

A scatterplot of X and Y variables is provided below. Describe the relationship between X and Y



- a. there is a strong positive linear relationship between X and Y.
- b. there is a strong negative linear relationship between X and Y.
- c. there is no linear relationship between X and Y.
- d. there is a linear relationship between X and Y.

Question 10

Not yet answered

Marked out of 1.00

When conducting a hypothesis test of a single population mean with an unknown variance and small sample size (n<30), what test will you use?

- a. z-test
- b. t-test
- c. p-test
- d. f-test

Question 11

Not yet answered

Marked out of 1.00

Which statistical technique is used to make predictions about one variable (Y) based on another variable (X) when there appears to be a linear relationship between them?

- a. Hypothesis testing
- b. ANOVA
- c. Linear regression
- d. Chi-squared test

Question 12

Not yet answered

Marked out of 1.00

We are provided below the JASP output of a linear regression with sales as the response variable and adverts (advertisements investment) as the explanatory variable. Is slope b_1 statistically significant for $\alpha = 0.05$?

Linear Regression

Model Summary - sales

Model	R	R^2	Adjusted R^2	RMSE
H_0	0.000	0.000	0.000	80.699
H_1	0.578	0.335	0.331	65.991

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
H_1	Regression	433687.833	1	433687.833	99.587	< .001
	Residual	862264.167	198	4354.870		
	Total	$1.296 \times 10^{+6}$	199			

Note. The intercept model is omitted, as no meaningful information can be shown.

Coefficients

Model		Unstandardized	Standard Error	Standardized	t	p
H_0	(Intercept)	193.200	5.706		33.857	< .001
H_1	(Intercept)	134.140	7.537		17.799	< .001
	adverts	0.096	0.010	0.578	9.979	< .001

Select one:

- ○ True
- ○ False

Question 13

Not yet answered

Marked out of 1.00

We are provided below the JASP output of a linear regression with sales as the response variable and adverts (advertisements investment) as the explanatory variable. What is R^2?

Linear Regression

Model Summary - sales

Model	R	R^2	Adjusted R^2	RMSE
H_0	0.000	0.000	0.000	80.699
H_1	0.578	0.335	0.331	65.991

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
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H_1	(Intercept)	134.140	7.537		17.799	< .001
	adverts	0.096	0.010	0.578	9.979	< .001

- a. 0.331
- b. 0.578
- c. 0.335
- d. 0.336

Question 14

Not yet answered

Marked out of 1.00

The summary statistics of a study between two variables (y and x) is provided below. Calculate the intercept (b_0) of the regression line based on this data:

S_y	9.6
S_x	4
R	0.73
$\overline{x}$	68.4
$\overline{y}$	141.6

a. y = 121.76 + 10.75x

b. $\hat{y}$ = 21.76 + 1.75x

c. $\hat{y}$ = 11.76 + 5.75x

d. y = 21.76 + 1.75x

Question 15

Not yet answered

Marked out of 1.00

We are provided below the JASP output of a linear regression with sales as the response variable and adverts (advertisements investment) as the explanatory variable. What is the slope b_1?

Linear Regression

Model Summary - sales

Model	R	R^2	Adjusted R^2	RMSE
H_0	0.000	0.000	0.000	80.699
H_1	0.578	0.335	0.331	65.991

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
H_1	Regression	433687.833	1	433687.833	99.587	< .001
	Residual	862264.167	198	4354.870		
	Total	$1.296\times10^{+6}$	199			

Note. The intercept model is omitted, as no meaningful information can be shown.

Coefficients

Model		Unstandardized	Standard Error	Standardized	t	p
H_0	(Intercept)	193.200	5.706		33.857	< .001
H_1	(Intercept)	134.140	7.537		17.799	< .001
	adverts	0.096	0.010	0.578	9.979	< .001

- a. 0.096
- b. 0.010
- c. 7.537
- d. 0.085