

HW F16: Final Exam Review

Score: 0/46 0/46 answered

● Question 38



Based on the data shown below, calculate the regression line (each value to two decimal places)

$y =$ $x +$

x	y
4	8.32
5	9.48
6	9.74
7	7.7
8	7.26
9	7.72
10	6.18
11	3.24
12	3.1

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● Question 39



A researcher wishes to examine the relationship between years of schooling completed and the number of pregnancies in young women. Her research discovers a linear relationship, and the least squares line is: $\hat{y} = 4 - 3x$ where x is the number of years of schooling completed and y is the number of pregnancies. The slope of the regression line can be interpreted in the following way:

- When amount of schooling increases by one year, the number of pregnancies decreases by 3.
- When amount of schooling increases by one year, the number of pregnancies increases by 3.
- When amount of schooling increases by one year, the number of pregnancies increases by 4.
- When amount of schooling increases by one year, the number of pregnancies decreases by 4.

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● Question 40 ▼



You intend to conduct a goodness-of-fit test for a multinomial distribution with 5 categories. You collect data from 61 subjects.

What are the degrees of freedom for the χ^2 distribution for this test?

d.f. =

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● Question 42 < >

You wish to test the following claim (H_a) at a significance level of $\alpha = 0.10$.

$H_0: \mu = 74.8$
 $H_a: \mu \neq 74.8$

You believe the population is normally distributed, but you do not know the standard deviation. You obtain a sample of size $n = 5$ with mean $M = 69.9$ and a standard deviation of $SD = 18.2$.

What is the p-value for this sample? (Report answer accurate to four decimal places.)

p-value =

The p-value is...

- less than (or equal to) α
- greater than α

This p-value leads to a decision to...

- reject the null
- accept the null
- fail to reject the null

As such, the final conclusion is that...

- There is sufficient evidence to warrant rejection of the claim that the population mean is not equal to 74.8.
- There is not sufficient evidence to warrant rejection of the claim that the population mean is not equal to 74.8.
- The sample data support the claim that the population mean is not equal to 74.8.
- There is not sufficient sample evidence to support the claim that the population mean is not equal to 74.8.

HW FT6: FINAL EXAM REVIEW

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● Question 43 < >

You wish to test the following claim (H_a) at a significance level of $\alpha = 0.05$.

$$H_o: \mu = 62.1$$

$$H_a: \mu \neq 62.1$$

You believe the population is normally distributed, but you do not know the standard deviation. You obtain a sample of size $n = 17$ with mean $M = 67.5$ and a standard deviation of $SD = 8.2$.

What is the p-value for this sample? (Report answer accurate to four decimal places.)

p-value =

The p-value is...

- less than (or equal to) α
- greater than α

This p-value leads to a decision to...

- reject the null
- accept the null
- fail to reject the null

As such, the final conclusion is that...

- There is sufficient evidence to warrant rejection of the claim that the population mean is not equal to 62.1.
- There is not sufficient evidence to warrant rejection of the claim that the population mean is not equal to 62.1.
- The sample data support the claim that the population mean is not equal to 62.1.
- There is not sufficient sample evidence to support the claim that the population mean is not equal to 62.1.

You are conducting a study to see if the proportion of men over 50 who regularly have their prostate examined is significantly more than 0.63. You use a significance level of $\alpha = 0.01$.

$$H_0: p = 0.63$$

$$H_1: p > 0.63$$

You obtain a sample of size $n = 631$ in which there are 406 successes.

What is the test statistic for this sample? (Report answer accurate to three decimal places.)

test statistic =

What is the p-value for this sample? (Report answer accurate to four decimal places.)

p-value =

The p-value is...

- less than (or equal to) α
- greater than α

This test statistic leads to a decision to...

- reject the null
- accept the null
- fail to reject the null

As such, the final conclusion is that...

- There is sufficient evidence to warrant rejection of the claim that the proportion of men over 50 who regularly have their prostate examined is more than 0.63.
- There is not sufficient evidence to warrant rejection of the claim that the proportion of men over 50 who regularly have their prostate examined is more than 0.63.
- The sample data support the claim that the proportion of men over 50 who regularly have their prostate examined is more than 0.63.
- There is not sufficient sample evidence to support the claim that the proportion of men over 50 who regularly have their prostate examined is more than 0.63.



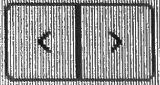
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● Question 45



Test the claim that the proportion of people who own cats is smaller than 30% at the 0.10 significance level.

The null and alternative hypothesis would be:

- $H_0: p \geq 0.3$ $H_0: p \leq 0.3$ $H_0: p = 0.3$ $H_0: \mu \geq 0.3$ $H_0: \mu \leq 0.3$ $H_0: \mu = 0.3$
 $H_1: p < 0.3$ $H_1: p > 0.3$ $H_1: p \neq 0.3$ $H_1: \mu < 0.3$ $H_1: \mu > 0.3$ $H_1: \mu \neq 0.3$

The test is:

- two-tailed left-tailed right-tailed

Based on a sample of 700 people, 24% owned cats

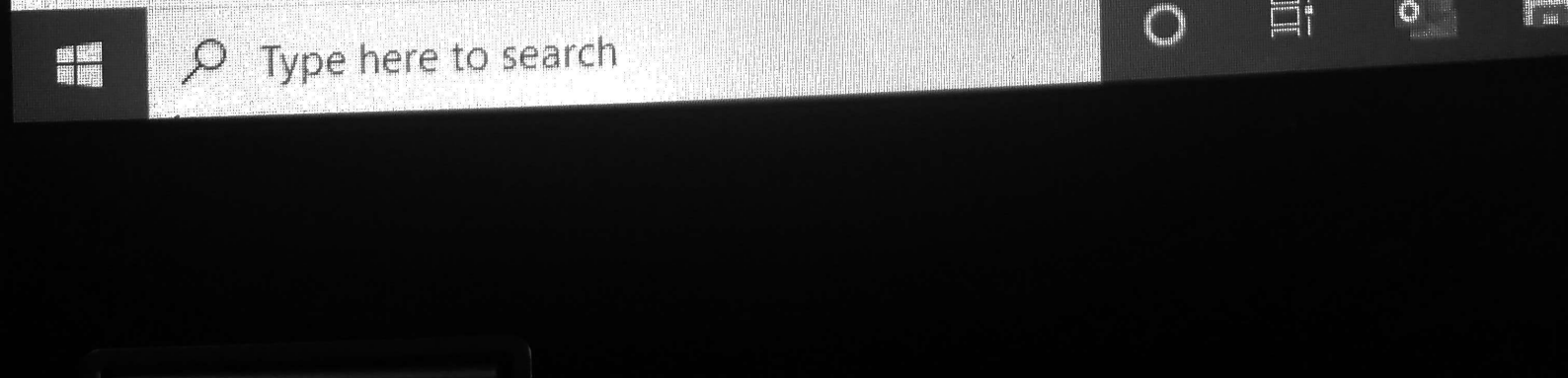
The p-value is: (to 2 decimals)

Based on this we:

- Fail to reject the null hypothesis
 Reject the null hypothesis

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● Question 46 < >

You are conducting a multinomial Goodness of Fit hypothesis test for the claim that the 4 categories occur with the following frequencies:

$$H_0: p_A = 0.1; p_B = 0.3; p_C = 0.5; p_D = 0.1$$

Complete the table. Report all answers accurate to two decimal places, unless otherwise specified.

Category	Observed Frequency	Expected Frequency
A	12	<input type="text"/>
B	23	<input type="text"/>
C	22	<input type="text"/>
D	19	<input type="text"/>

What is the chi-square test-statistic for this data? (Round to two decimal places)

$$\chi^2 = \text{$$

What is the P-Value? (Round to four decimal places)

$$P\text{-Value} = \text{$$

For significance level alpha 0.05.

What would be the conclusion of this hypothesis test?

- Fail to reject the Null Hypothesis
- Reject the Null Hypothesis

Report all answers accurate to three decimal places.



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