Problem Set #6
Homework • Due in 6 days

17/17 answered

Problem Set #6 - Hypothesis Testing

Part 1

Question 1
Homework • Answered • Due May 24th, 11:59 PM

The goal of _____ is to test a specific claim for an unknown population characteristic.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	estimation
b	statistical inference
c	hypothesis testing ✓ Your answer

Answered - Correct! • 2 attempts left

Resubmit

Question 2
Homework • Answered • Due May 24th, 11:59 PM

Fill in the Blanks

X_2 X^2 Ω

In hypothesis testing, the null ✓ hypothesis gives a claim or claimed

You are correct

value, that is assumed to be true.

Answered - Correct! • **2** attempts left Resubmit

Question 3

Homework • Answered • Due May 24th, 11:59 PM

If the sample data strongly contradict the null hypothesis then

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	we will fail to reject the null hypothesis.
b	we will reject the null hypothesis. ✓ Your answer

Answered - Correct! • **2** attempts left Resubmit

Part 2

Consider each of the following p-values. Based on significance level of 0.05, choose whether to reject or fail to reject the null hypothesis.

Question 4

Homework • Answered • Due May 24th, 11:59 PM

Given a p-value of 0.007 we would _____ the null hypothesis.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	reject ✓ Your answer

Answered - Correct! • **2** attempts left

Resubmit

Question 5

Homework • Answered • Due May 24th, 11:59 PM

Given a p-value of 0.84 we would _____ the null hypothesis.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	reject
b	fail to reject ✓ Your answer

Answered - Correct! • **2** attempts left

Resubmit

Part 3

For a particular brand of soil sold at a local nursery, the amount of organic matter in the soil is advertised as 3%. Perform a hypothesis test to test whether the average percentage of organic matter in the soil is something other than 3%. Use a significance level of $\alpha = 0.05$.

Question 6

Homework • Answered • Due May 24th, 11:59 PM

Identify the question of interest.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	Is the proportion of soil specimens that have a percentage of organic matter that exceeds 3% greater than 0.5?
b	Is the average percentage of organic matter in the soil from a sample of 30 specimens different from 3%?
c	Is the average percentage of organic matter in the soil sold by the nursery different than 3%. ✓ Your answer

Answered - Correct! • **1** attempt left

Resubmit

Question 7

Homework • Answered • Due May 24th, 11:59 PM

Identify the null and alternative hypotheses.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	$H_0 : \mu = 3\%$ vs. $H_A : \mu > 3\%$
b	$H_0 : \mu = 3\%$ vs. $H_A : \mu \neq 3\%$ ✓ Your answer
c	$H_0 : \overline{X} = 3\%$ vs. $H_A : \overline{X} > 3\%$
d	$H_0 : \overline{X} = 3\%$ vs. $H_A : \overline{X} >\neq 3\%$

Answered - Correct! • **2** attempts left Resubmit

A random sample of 30 soil specimens was obtained from the nursery. The percentage of organic matter in the soil was determined for each specimen, resulting in the accompanying data:

1.10, 5.09, 0.97, 1.59, 4.60, 0.32, 0.55, 1.45, 0.14, 4.47, 1.20, 3.50, 5.02, 4.67, 5.22, 3.69, 3.98, 3.17, 3.03, 2.21, 0.69, 4.47, 3.31, 1.17, 0.76, 1.17, 1.57, 2.62, 1.66, 2.05

The sample mean of these data is 2.515 and the sample standard deviation is 1.630.

Question 8

Homework • Answered • Due May 24th, 11:59 PM

Calculate the test statistic for this hypothesis test. Round your answer to **two** decimal places.

Type your numeric answer and submit

-1.63 ✓

You are correct

Answered - Correct! • **1** attempt left Resubmit

Question 9

Homework • Answered • Due May 24th, 11:59 PM

Identify the null distribution.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	Under the null hypothesis, the test statistic follows a standard normal distribution.
b	Under the null hypothesis, the test statistic follows a normal distribution with a mean of 2.515 and a standard deviation of 1.630.
c	Under the null distribution, the test statistic follows a t distribution with 30 degrees of freedom.
d	Under the null distribution, the test statistic follows a t distribution with 29 degrees of freedom. ✓ Your answer

Answered - Correct! • **2** attempts left Resubmit

Question 10

Homework • Answered • Due May 24th, 11:59 PM

Calculate the p-value. Round your answer to **three** decimal places.

Type your numeric answer and submit

0.114 ✓

You are correct

Answered - Correct! • **2** attempts left Resubmit

Question 11

Homework • Answered • Due May 24th, 11:59 PM

Which of the following statements correctly concludes the amount of evidence in favor of the alternative hypothesis?

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	There is no evidence to suggest that the average percentage of organic matter in the soil is different from 3%. ✓ Your answer
b	There is slightly suggestive evidence that the average percentage of organic matter in the soil is different from 3%.

c	There is moderately suggestive evidence that the average percentage of organic matter in the soil is different from 3%.
d	There is convincing evidence that the average percentage of organic matter in the soil is different from 3%.

Answered - Correct! • **2** attempts left Resubmit

Question 12
Homework • Answered • Due May 24th, 11:59 PM

Fill in the Blanks

Type your answers in all of the blanks and submit

$X_{\blacksquare}$ $X^{\blacksquare}$ Ω

Finish this concluding statement: At the $\alpha = 0.05$ significance level, we

fail to reject ✓ the null hypothesis that the average percentage of organic

You are correct

matter in the soil is equal to 3%.

Answered - Correct! • **0** attempt left Resubmit

Part 4

A random sample of 150 recent donations at a certain blood bank reveals that 82 were type A blood. Use these data to test whether the actual proportion of blood donations at this bank is greater than 0.4.

Question 13
Homework • Answered • Due May 24th, 11:59 PM

Identify the hypotheses.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	$H_0 : mu = 0.4$ vs. $H_A : mu \neq 0.4$
b	$H_0 : p = 0.4$ vs. $H_A : p > 0.4$ ✓ Your answer
c	$H_0 : mu = 0.547$ vs. $H_A : mu > 0.547$
d	$H_0 : p = 0.547$ vs. $H_A : p > 0.547$

Answered - Correct! • **2** attempts left Resubmit

Question 14

Homework • Answered • Due May 24th, 11:59 PM

Check the sample size conditions necessary to perform a z-test for a proportion.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	The sample size conditions for the hypothesis test are met because $np_0 \geq 10$ and $n(1 - p_0) \geq 10$. ✓ Your answer
b	The sample size conditions for the hypothesis test are not met because $np_0 < 10$.
c	The sample size conditions for the hypothesis test are not met because $n(1 - p_0) < 10$.
d	The sample size conditions for the hypothesis test are met because the sample size is greater than 30.

Answered - Correct! • **2** attempts left Resubmit

Question 15

Homework • Answered • Due May 24th, 11:59 PM

Calculate the test statistic. Round your answer to **two** decimal places.

Type your numeric answer and submit

3.67 ✓

You are correct

Answered - Correct! • **2** attempts left

Resubmit

Question 16

Homework • Answered • Due May 24th, 11:59 PM

Calculate the p-value. Round your answer to **four** decimal places.

Type your numeric answer and submit

0.0001 ✓

You are correct

Answered - Correct! • **1** attempt left

Resubmit

Question 17

Homework • Answered • Due May 24th, 11:59 PM

Select the correct concluding statement.

Select an answer and submit. For keyboard navigation, use the up/down arrow keys to select an answer.

a	There is no evidence that the proportion of blood donations received by this blood bank of type A blood is greater than 0.4.
b	There is slightly suggestive evidence that the proportion of blood donations received by this blood bank of type A blood is greater than 0.4.
c	There is moderately suggestive evidence that the proportion of blood donations received by this blood bank of type A blood is greater than 0.4.
d	There is convincing evidence that the proportion of blood donations received by this blood bank of type A blood is greater than 0.4. ✓ Your answer

Answered - Correct! • **1** attempt left

Resubmit

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