HW E12: Hypothesis Testing Proportions

Score: 0/18 0/6 answered

Question 1

Test the claim that the mean GPA of night students is larger than 2.5 at the 0.025 significance level.

The null and alternative hypothesis would be:

$H_0: p = 0.625$ $H_0: \mu = 2.5$ $H_0: \mu \leq 2.5$ $H_0: \mu \geq 2.5$ $H_0: p \geq 0.625$ $H_0: p \leq 0.625$

$H_1: p \neq 0.625$ $H_1: \mu \neq 2.5$ $H_1: \mu > 2.5$ $H_1: \mu < 2.5$ $H_1: p < 0.625$ $H_1: p > 0.625$

The test is:

right-tailed left-tailed two-tailed

Based on a sample of 65 people, the sample mean GPA was 2.51 with a standard deviation of 0.03

The p-value is: _____ (to 2 decimals)

Based on this we:

- Reject the null hypothesis
- Fail to reject the null hypothesis

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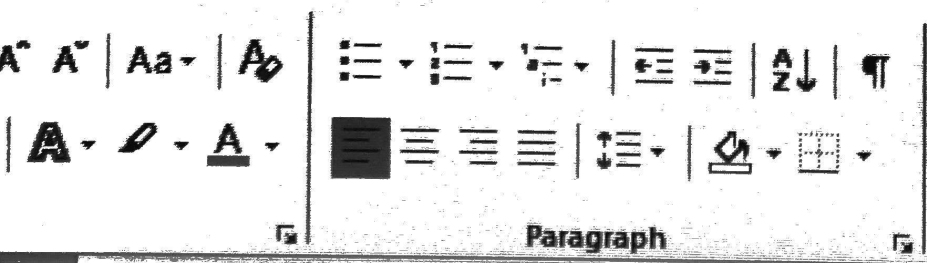

You are conducting a study to see if the probability of catching the flu this year is significantly more than 0.76. You use a significance level of $\alpha=0.002$.

$H_0: p=0.76$
$H_1: p>0.76$

You obtain a sample of size $n=681$ in which there are 552 successes.

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 probability of catching the flu this year is more than 0.76.
- There is not sufficient evidence to warrant rejection of the claim that the probability of catching the flu this year is more than 0.76.
- The sample data support the claim that the probability of catching the flu this year is more than 0.76.
- There is not sufficient sample evidence to support the claim that the probability of catching the flu this year is more than 0.76.

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You wish to test the following claim (HaHa) at a significance level of α=0.001α=0.001.

$H_o:\mu=77.7$ Ho:μ=77.7
$H_a:\mu\neq77.7$ Ha:μ≠77.7

You believe the population is normally distributed, but you do not know the standard deviation. You obtain a sample of size n=6n=6 with mean M=42.8M=42.8 and a standard deviation of SD=19.9SD=19.9.

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) αα
- greater than αα

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 77.7.
- There is not sufficient evidence to warrant rejection of the claim that the population mean is not equal to 77.7.
- The sample data support the claim that the population mean is not equal to 77.7.
- There is not sufficient sample evidence to support the claim that the population mean is not equal to 77.7.

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

$H_o: p=0.48$
$H_a: p\neq 0.48$

You obtain a sample of size $n=183$ in which there are 80 successful observations. For this test, you should NOT use the continuity correction, and you should use the normal distribution as an approximation for the binomial distribution.

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 population proportion is not equal to 0.48.
- There is not sufficient evidence to warrant rejection of the claim that the population proportion is not equal to 0.48.
- The sample data support the claim that the population proportion is not equal to 0.48.
- There is not sufficient sample evidence to support the claim that the population proportion is not equal to 0.48.

HW ET2: Hypothesis Testing Proportions

Score: 0/18 0/6 answered

Question 5

A well-known brokerage firm executive claimed that 70% of investors are currently confident of meeting their investment goals. An XYZ Investor Optimism Survey, conducted over a two week period, found that in a sample of 300 people, 67% of them said they are confident of meeting their goals.

Test the claim that the proportion of people who are confident is smaller than 70% at the 0.005 significance level.

The null and alternative hypothesis would be:

$H_0: p \geq 0.7$ $H_0: \mu = 0.7$ $H_0: \mu \leq 0.7$ $H_0: p \leq 0.7$ $H_0: \mu \geq 0.7$ $H_0: p = 0.7$
$H_1: p < 0.7$ $H_1: \mu \neq 0.7$ $H_1: \mu > 0.7$ $H_1: p > 0.7$ $H_1: \mu < 0.7$ $H_1: p \neq 0.7$

The test is:

two-tailed left-tailed right-tailed

The test statistic is: (to 3 decimals)

The p-value is: (to 4 decimals)

Based on this we:

Fail to reject the null hypothesis

Reject the null hypothesis

Many investors and financial analysts believe the Dow Jones Industrial Average (DJIA) gives a good barometer of the overall stock market. On January 31, 2006, 9 of the 30 stocks making up the DJIA increased in price (The Wall Street Journal, February 1, 2006). On the basis of this fact, a financial analyst claims we can assume that 30% of the stocks traded on the New York Stock Exchange (NYSE) went up the same day.

A sample of 58 stocks traded on the NYSE that day showed that 8 went up.

You are conducting a study to see if the proportion of stocks that went up is is significantly less than 0.3. You use a significance level of $\alpha=0.001$α=0.001.

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) αα
- greater than αα

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 stocks that went up is is less than 0.3.
- There is not sufficient evidence to warrant rejection of the claim that the proportion of stocks that went up is is less than 0.3.
- The sample data support the claim that the proportion of stocks that went up is is less than 0.3.
- There is not sufficient sample evidence to support the claim that the proportion of stocks that went up is is less than 0.3.

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