Results

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80%

8
Out of 10 points

04:53
Time for this attempt

Your Answers:

1 1 / 1 point

In hypothesis testing, what does an extreme value for the test statistic indicate?

- The null hypothesis is likely to be true
- The sample was not random
- The test was done incorrectly
- ✓ The null hypothesis is not likely to be true
- The sampling distribution conditions were not met

2 1 / 1 point

Which of the following tests will produce the smallest p-value?

- A left-sided hypothesis test with a Z-statistic of -0.8
- ✓ A right-sided hypothesis test with a Z-statistic of 1.5
- A two-sided hypothesis test with a Z-statistic of -0.8
- A two-sided hypothesis test with a Z-statistic of 1.5

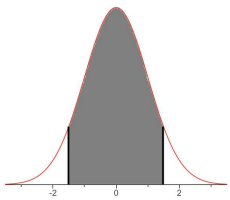
3 1 / 1 point

A health organization estimated that the flu vaccine was 73% effective against the influenza B virus. An immunologist conducted a study on a random sample and found that the effective rate is 68%. Therefore, the immunologist suspects that the current flu vaccine is less effective against this virus.
Pick the correct pair of hypotheses the immunologist could use to test this claim.

- ✓ H0: $p = 0.73$
  Ha: $p < 0.73$
- H0: $p = 0.73$
  Ha: $p \neq 0.73$
- H0: $p = 0.73$
  Ha: $p = 0.68$
- H0: $p = 0.68$
  Ha: $p > 0.68$

4 1 / 1 point

For the graph below, indicate whether the shaded area could represent a p-value. Explain why or why not.



✓ The shaded area could not be a p-value because it does not include tail areas.

The shaded area could be a p-value for a test with a two-sided alternative hypothesis.

The shaded area could not be a p-value because it includes tail areas only.

The shaded area could be a p-value for a test with a one-sided alternative hypothesis.

5 1 / 1 point

A janitor at a large office building believes that his supply of light bulbs has too many defective bulbs. The janitor's null hypothesis is that the supply of light bulbs has a defect rate of p=0.07 (the light bulb manufacturer's stated defect rate). Suppose he does a hypothesis test with a significance level of 0.05. Symbolically, the null and alternative hypothesis are as follows

$$H_0: p = 0.07 \text{ and } H_a: p > 0.07$$

The janitor calculates a p-value for the hypothesis test of approximately 0.087. Choose the correct interpretation for the p-value.

The p-value tells us that the true population rate of defective light bulbs is approximately 0.087.

The p-value tells us that the probability of concluding that the defect rate is equal to 0.07, when in fact it is greater than 0.07, is approximately 0.087.

✓ The p-value tells us that if the defect rate is 0.07, then the probability that the janitor will observe a statistic that is more extreme is approximately 0.087. At a significance level of 0.05, this would not be an unusual outcome.

None of these

6 1 / 1 point

Suppose the test statistic for a hypothesis test is z = 1.32. Which of the following is appropriate interpretation of test? (Use a significance level of 0.05)

✓ The test statistic does not provide enough evidence to reject the null hypothesis at significance level of 0.05.

The test statistic provides enough evidence to reject the null hypothesis in a one-sided test. but would fail to reject the the null hypothesis in a two-sided test.

The test statistic provides enough evidence to reject the null hypothesis in favor of the alternative hypothesis in a one-sided test.

The test statistic provides enough evidence to reject the null hypothesis in favor of the alternative hypothesis in a two-sided test.

7 1 / 1 point

A researcher conducts a hypothesis test on a population proportion. Her null and alternative hypothesis are
H0: p=0.6 and Ha: p < 0.6
The p-value was found to be 0.025.
Choose the correct conclusion regarding the null hypothesis.

Since the p-value is small, there is sufficient evidence to conclude that the population proportion is significantly less than 0.6.

✓ At significance level of 0.01, there is insufficient evidence to reject the null hypothesis.

At significance level of 0.05, there is insufficient evidence to reject the null hypothesis.

There is sufficient evidence to conclude that the population proportion is still 0.6.

8 0 / 1 point

Previous study showed that the proportion of young adults in the U.S. who reported smoking at least twice a week or more in the last month was 0.16. A researcher is wondering whether the smoking habits of young adults (18−25 years of age) in a certain city are the same as the general population of young adults in the U.S.
The researcher collected data from a random sample of 55 adults in the city of interest and found that 20% of the young adults smoke at least twice a week or more.
Check that the conditions hold so that the sampling distribution of the z-statistic will approximately follow the standard normal distribution.
Are the conditions satisfied? If not, choose the condition that is not satisfied.

No, the researcher did not collect a random sample.

No, the researcher did not collect a large enough sample.

No, the population is not large enough

× Yes, all the conditions are satisfied.

Correct Answer: **No, the researcher did not collect a large enough sample.**

9 0 / 1 point

A claim is made that the proportion of children who play sports is 0.5. In a random sample of 400 subjects, the proportion of children who say they play a sport is 0.43.
What is the value of the test statistic z if you were to conduct the hypothesis test? (Please provide the value without rounding)

× -2.4

Correct Answer: **-2.8**

10 1 / 1 point

Which of the following statements is true about the null hypothesis (H_0)? (select all that apply)

- [x] It is a statement that represents no change from the status quo.
- [ ] It usually contains the unequal sign
- [x] It is assumed to be true throughout the testing procedure.
- [ ] It is a statement about the sample statistic