Hypothesis Testing of Single Mean and Single Proportion: Lab^{*}

Susan Dean

Barbara Illowsky, Ph.D.

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Class Time: Names:

1 Student Learning Outcomes:

- The student will select the appropriate distributions to use in each case.
- The student will conduct hypothesis tests and interpret the results.

2 Television Survey

In a recent survey, it was stated that Americans watch television on average four hours per day. Assume that $\sigma = 2$. Using your class as the sample, conduct a hypothesis test to determine if the average for students at your school is lower.

- 1. H_o :
- 2. H_a :
- 3. In words, define the random variable. $_____=$
- 4. The distribution to use for the test is:
- 5. Determine the test statistic using your data.
- 6. Draw a graph and label it appropriately. Shade the actual level of significance.

a. Graph:

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- **b.** Determine the p-value:
- 7. Do you or do you not reject the null hypothesis? Why?
- 8. Write a clear conclusion using a complete sentence.

3 Language Survey

About 42.3% of Californians and 19.6% of all Americans over age 5 speak a language other than English at home. Using your class as the sample, conduct a hypothesis test to determine if the percent of the students at your school that speak a language other than English at home is different from 42.3%. (Source: $http://www.census.gov/hhes/socdemo/language/^{-1}$)

- 1. H_o :
- 2. H_a :
- 3. In words, define the random variable. _____ =
- 4. The distribution to use for the test is:
- 5. Determine the test statistic using your data.
- 6. Draw a graph and label it appropriately. Shade the actual level of significance.

¹http://cnx.org/content/m17007/latest/ http://www.census.gov/hhes/socdemo/language/

a. Graph:



Figure 2

- **b.** Determine the p-value:
- 7. Do you or do you not reject the null hypothesis? Why?
- 8. Write a clear conclusion using a complete sentence.

4 Jeans Survey

Suppose that young adults own an average of 3 pairs of jeans. Survey 8 people from your class to determine if the average is higher than 3.

- 1. $H_o:$
- 2. H_a :
- 3. In words, define the random variable. ____ =
- 4. The distribution to use for the test is:
- 5. Determine the test statistic using your data.
- 6. Draw a graph and label it appropriately. Shade the actual level of significance.

a. Graph:





- **b.** Determine the p-value:
- 7. Do you or do you not reject the null hypothesis? Why?8. Write a clear conclusion using a complete sentence.