

Stat 185 - Quiz 4

Friday, November 10

Name: _____

Please write complete solutions (answers with supporting work) to these problems separate paper.

1. I've got two CSV files on my webspace that you can read into R as follows:

```
df1 = read.csv("http://www.marksmath.org/data/data1.csv")
df2 = read.csv("http://www.marksmath.org/data/data2.csv")
```

The first is a random sample of 38 books and their prices chosen from UNCA's bookstore. The second is a random sample of 42 books and their prices chosen from Amazon. We'd like to run a hypothesis test to explore if the average price of a text from UNCA's bookstore is the same as the average price of a text from Amazon.

- (a) Letting μ_U represent the average price of a text from UNCA's bookstore and μ_A represent the average price of a text from Amazon, write down the null and alternative hypotheses for this problem.
 - (b) Use the `head` command to identify the column names in the data files. Write down those names as your answer to this part.
Remember that you'll type something like `df2$column_name` to refer to the data in a column of a data frame, where `column_name` is the name of the column that you found by examining the `head` of the data.
 - (c) Use the `t.test` command to perform your hypothesis test. Write down the p -value and conclusion of the hypothesis test as your answer to this problem.
2. In a sample of 13 Republicans, 8 were for issue 2 and 5 against. In a sample of 17 Democrats, 4 were for issue 2 and 13 against. Let's use this data to explore whether there is a genuine difference in the views of Democrats and Republicans on issue 2 to a 95% level of confidence.

- (a) Compute the observed proportions \hat{p}_R and \hat{p}_D , as well as the difference

$$\hat{p} = \hat{p}_D - \hat{p}_R.$$

- (b) Compute the standard error.
- (c) Compute the test statistic.
- (d) Use a command that looks something like `2*pt(-1.2, 3)` to compute the p -value.
- (e) State the conclusion of the test.