Homework 4

Math 445, Spring 2017

Due Wednesday, May 3 by 4:30 p.m.

Instructions

- Please complete problems that require the use of R in R markdown. Theoretical problems may be handwritten. **Please knit your .Rmd file to either Word or PDF and print it for submission** with the remainder of the problems.
- All assignments should be stapled.
- Remember that the textbook data sets are contained in the `resampledata` R package.
- When completing a hypothesis test, be sure to outline all of the steps in your solution.

Assignment

Complete the following exercises from **Chapter 6** of the textbook.

Exercise 11

Exercise 16

Notes on part b: If you use R to run the goodness-of-fit test, include the results (the value of the test statistic and associated p-value) and the R code used in your solution.

Notes on part c: To superimpose the Gamma(r, λ) PDF on a histogram (remember to change the scale of the y-axis to the density scale!), use the below layer:

```
stat_function(fun = dgamma, geom = "line", args = list(shape = r, rate = lambda))
```

where `r` and `lambda` are the estimates of r and λ, respectively.

To superimpose the Gamma(r, λ) CDF on a plot of the ECDF, use the below layer:

```
stat_function(fun = pgamma, geom = "line", args = list(shape = r, rate = lambda))
```

You can also experiment with the `color` and `linetype` arguments to make your plots easier to read.

Exercise 19

Exercise 29