

MTH 325, Quiz #5, Spring 2023 Name _____

Instructions: Answer each question as thoroughly as possible. Round answers to 4 decimal places as needed. Exact answers are best when possible. Be sure to answer all parts of each question.

1. In the file **325quiz5data.xlsx**, there is data related to preferences for drinking regular beer vs. light beer. The file contains data on gender (Male=1), Marital Status (Married=1), Income and Age. The Beer Preference column has been recoded as Beer_Pref_Class (Regular=1). Load this data into R, and create a logistic model using Income as the explanatory variable. You will need to convert Beer_Pref_Class to a factor. Then use `glm(Beer_Pref_Class~Income, data=mydata, family="binomial")` (updating your data filename as needed). Use `summary()` to display the results.
 - a. Describe your hypothesis test of the model. Is the coefficient for Income significant?
 - b. Create a plot of the data Income and Beer_Pref_Class and plot the model on the graph (you should be able to do this inside `ggplot`).
 - c. Interpret the coefficients of Income in the model in terms of odds of selecting regular beer as their preference.
 - d. Redo the model with Gender, Married, Income and Age in your model. Are all the variables significant? If not which ones?