MTH 325, Quiz #7, 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. Using the same data from Quiz #6 (**325quiz6data.xlsx**), perform three types of model selection procedures (you don't need to transform any variables for this):
   a. Best subset selection
   b. Backward selection
   c. LASSO (penalized) regression (see Lab #6 for code examples)

   Report the results of the coefficients and variables in the model in each case. Compare the results using the following criteria:
   i.   The R^2 value if available
   ii.   The values of the coefficients
   iii.   The residual standard error
   iv.   The AIC and BIC
   v.   Which model is the simplest (has the fewest variables)? Did any come out the same?
   vi.   Using plot(modelname) in R, create diagnostic plots for each model.

   Based on this information, write a paragraph explaining how you would choose from among these models. You are free to bring in additional criteria as needed.