This is in regard to the file fat.R which consists of a data set called fat. In order to load this data set, just open this script, select all of the text, and then hit Ctrl+R. This data set consists of several body measurements that can be used to predict body-fat percentage (the column body.fat in the data frame). These measurements are taken on 252 adult men using a scale with a height measurement apparatus and a measuring tape (measuring in cm), in hopes of being able to come up with a low-cost alternative to the special apparatuses needed to truly measure body fat percentage.

1. Make a plot of body.fat vs abdomen. What kind of relationship is there between these two variables?
2. Fit a least squares regression line using body.fat as the response (y) and abdomen as the only predictor (x). What is the equation for the best fitting line?
3. In a test to determine if there is no linear association between body.fat and abdomen, what would value of the test statistic be? Would you reject the null of no linear association in this case?
4. Display the residual vs. fitted plot and the normal q-q plot of the residuals. Comment on whether you believe that the model assumptions are appropriate in this case.
5. Consider fitting the model where body.fat is the response and abdomen and age are the predictors.
   1. Find the equation for the least squares regression line.
   2. Find a 95% confidence interval for the average body fat percentage of all 60-year old men who have a 105 cm abdomen in diameter.
   3. Suppose a 50-year old man has a 90 cm abdomen in diameter. Find a 95% prediction interval for his body fat percentage.