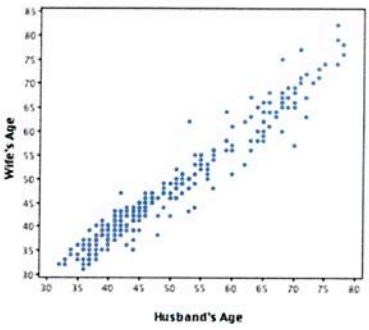
MTH 245, Quiz #11, Spring 2022 Name KEY

Instructions: Show all work (that work can be in the form of a spreadsheet submitted along with the quiz or done by hand on paper; if you use your calculator, say what functions you used). Report answers to the standard number of decimal places, or to the number requested in the problem. Be sure to answer all parts of the questions, including requests for interpretation and explanations. Be as thorough as possible.

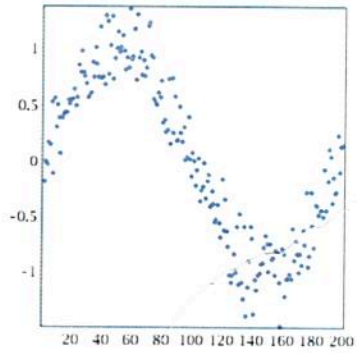
1. Label each of the scatterplots below as a) linear or non-linear, b) positive or negative or (near) zero linear correlation, c) strong, moderate or weak linear correlation.

linear positive strong

i.

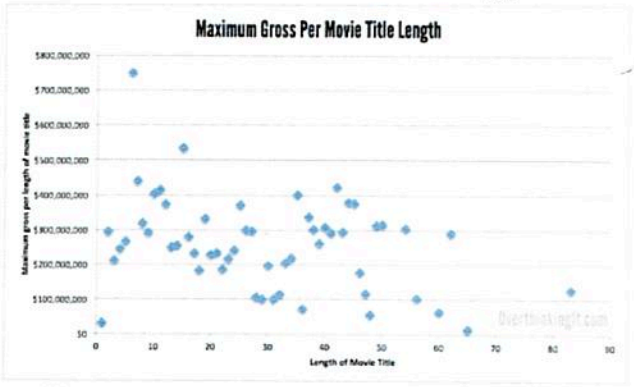


iv.



nonlinear zero weak

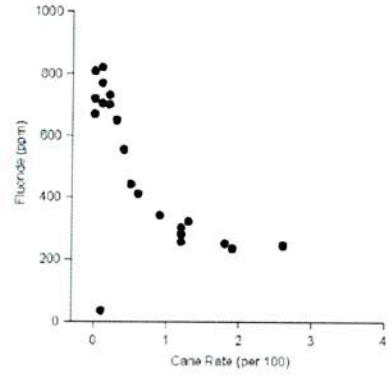
ii.



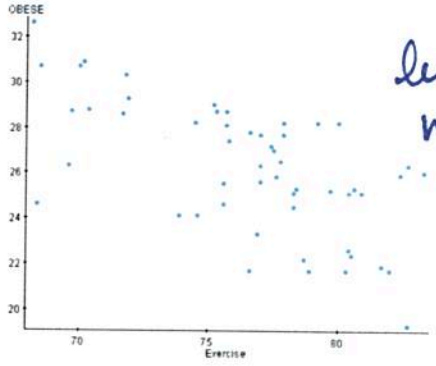
linear negative weak/moderate

nonlinear negative moderate

iii.



v.



linear negative weak

2. Use the data in the file **245quiz11data.xlsx** to answer the following questions.
   a. Plot the data on a scatterplot with weight predicting mpg. Would you describe the relationship between the variables age and height as i) positive, negative or zero; ii) strong, moderate or weak? negative, strong
   b. Find the linear regression line that best fits the data. Write the **equation** of the line.

$$y = -0.0069x + 42.907$$

   c. What is the correlation coefficient? Does it agree with your answer in part (a)? Why or why not?

$$r = -0.9596$$

yes. it is negative, and is > 0.7

   d. What proportion of the variation in mpg can be explained by the relationship of mpg with weight?

92.09%