Stat 482 Homework Set #1

Refer to the data from Exercise 1.27

A person's muscle mass is expected to decrease with age. To explore this relationship in women, a nutritionist randomly selected 15 women for each 10 year age group, beginning with 40 and ending with age 79. The input variable x is age (in years), and the response variable y is muscle mass (in muscle mass units).

1. State the simple linear regression model.
2. Provide an interpretation for the regression parameter β_1, stated in the context of the problem.

3. Compute the estimated regression line.
4. Compute the estimated variance and standard deviation.

5. Create a scatterplot with the least squares line included.
6. Comment on the appropriateness of the simple linear regression model for this example.