Stat 482 Homework Set #2

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. Compute the t-statistic and p-value for testing $H_o : \beta_1 = 0$.
2. Provide an interpretation of the above as a test for model compatibility.
3. Provide an interpretation of the above as a test for the sign / direction of the effect.
4. Compute an interval estimate for β_1.
5. Explain how an interval estimate provides additional information beyond the test result.

6. Compute an interval estimate for the centered model parameter β_0^*.
7. Provide an interpretation for your result, stated in the context of the problem.