Q2: Fit regression equations.

Coefficient of Calories for (1) : -8.586e-05

p-value for regression (1) : 0.201

Coefficient of Calories for (2) : 0.0004

p-value for regression (2) : 0.021

Coefficient of Calories for (3) : -8.252e-05

p-value for regression (3) : 0.201

Comparing the coefficients:

Coefficient for Regression (2) > Coefficient for Regression (3) > Coefficient for Regression (1)

Comparing the p-values:

p-value for regression (1) = p-value for regression (3) > p-value for regression (2)

Since calories and fat have a very strong evidence of nonzero correlation, they have a high degree of multicollinearity among (2) and (3) which results in different coefficients for calories. Looking at the plot in the first question, comparing their p values, we can say that there is a weak evidence of nonzero correlation between calories and QI which are the predictors for (3). The difference in p values can be explained by the different evidences of nonzero correlation. Since there is a weak evidence of nonzero correlation between calories and QI, the p-value for calories in (3) is similar to the one in (1). Since there is a strong evidence of nonzero correlation between calories and fat, its p value is different from (3).