Lista de Exercícios 2b

- Exercícios 7.3, 7.12, 7.16, 7.24 e 7.30 do livro-texto.

7.3. Refer to **Brand preference** Problem 6.5.

    a. Obtain the analysis of variance table that decomposes the regression sum of squares into extra sums of squares associated with X_1 and with X_2, given X_1.

    b. Test whether X_2 can be dropped from the regression model given that X_1 is retained. Use the F^* test statistic and level of significance .01. State the alternatives, decision rule, and conclusion. What is the P-value of the test?

7.12. Refer to **Brand preference** Problem 6.5. Calculate R^2_{Y1}, R^2_{Y2}, R^2_{12}, $R^2_{Y1|2}$, $R^2_{Y2|1}$, and R^2. Explain what each coefficient measures and interpret your results.

7.16. Refer to **Brand preference** Problem 6.5.

    a. Transform the variables by means of the correlation transformation (7.44) and fit the standardized regression model (7.45).

    b. Interpret the standardized regression coefficient b_1^*.

    c. Transform the estimated standardized regression coefficients by means of (7.53) back to the ones for the fitted regression model in the original variables. Verify that they are the same as the ones obtained in Problem 6.5b.

7.24. Refer to **Brand preference** Problem 6.5.

    a. Fit first-order simple linear regression model (2.1) for relating brand liking (Y) to moisture content (X_1). State the fitted regression function.

    b. Compare the estimated regression coefficient for moisture content obtained in part (a) with the corresponding coefficient obtained in Problem 6.5b. What do you find?

    c. Does $SSR(X_1)$ equal $SSR(X_1|X_2)$ here? If not, is the difference substantial?

    d. Refer to the correlation matrix obtained in Problem 6.5a. What bearing does this have on your findings in parts (b) and (c)?

7.30. Refer to **Brand preference** Problem 6.5.

    a. Regress Y on X_2 using simple linear regression model (2.1) and obtain the residuals.

    b. Regress X_1 on X_2 using simple linear regression model (2.1) and obtain the residuals.

    c. Calculate the coefficient of simple correlation between the two sets of residuals and show that it equals $r_{Y1|2}$.

BOM ESTUDO!!