1. KNNL Problem 6.1

2. Consider the brand preference data described in the text with Problem 6.5 on page 248. Run the linear regression with moisture and sweetness of the product as the explanatory variables and degree of liking as the response variable. Summarize the regression results by giving the fitted regression equation, the value of R^2, and the results of the significance test for the null hypothesis that the two regression coefficients for the explanatory variables are all zero (give null and alternative hypotheses, test statistic with degrees of freedom, P-value, and a brief conclusion in words).

3. Give separate 95% confidence intervals for the regression coefficients of sweetness and moisture. Describe the results of the hypothesis tests for the individual regression coefficients (give null and alternative hypotheses, test statistic with degrees of freedom, P-value, and a brief conclusion in words). What is the relationship between these hypothesis results and the confidence intervals?

4. For this assignment you will use the patient satisfaction data described in the text with Problem 6.15 on page 250–251.
a) Compute the pairwise correlations between the X's and between each X and Y. Which X variable appears to be the best individual predictor?
b) Run the linear regression with age, severity, and anxiety as the explanatory variables and satisfaction as the response variable. Summarize the regression results.
c) Plot the residuals versus the predicted satisfaction and each of the explanatory variables. Are there any unusual patterns?
d) Examine the assumption of normality for the residuals using a qqplot or histogram. State your conclusions.
e) Predict the satisfaction for a patient who is 45 years old, has a severity of illness index score equal to 53, and an anxiety index score of 1.7. Provide a 95% prediction interval with your prediction.