Homework

For each of the problems, ignore the original questions in the book, and make sure to do the following:

1. Construct scatter plots and put the estimated regression model on the plot
2. Estimate the model using lm() and state it correctly
3. Perform a hypothesis test for Ho: β1=0.
4. Estimate E(Y) using predict()
5. Compute CI for E(Y) and PI for Y using predict()
6. Interpret the coefficient of determination
7. Calculate the correlation coefficient

11.27

Test Ho: β1=0 using the confidence interval method.

Suppose the next four printing runs produced 8, 13, 16 and 18 stickers, respectively. Make predictions for these printing runs in 4) and 5).

11.44

In 1), also put the 95% confidence interval and prediction intervals on the scatter plot.

Test Ho: β1=0 using the p-value method.

In 4) and 5), use the model to predict the mean first-year salary for a MBA graduate with 10 years of prior work experience.

11.65

In 1), also put the 95% confidence interval and prediction intervals on the scatter plot.

Test Ho: β1=0 using the test statistic method.

Use the model to predict the mean fuel use for mileage level of 500, 1000 and 1500, respectively.

11.82

In 1), also put the 95% confidence interval and prediction intervals on the scatter plot.

Test Ho: β1=0 using the p-value method.

In 4) and 5), use the model to predict the sucrose activity measured by homogenate method if the sucrose activity measured by the pellet method is 80.

Additional problem:

How taxes change in response to changing market value of homes is a question of concern to citizens as a policy matter as well as a personal financial concern. The data included in the hometax.csv file contains the resale prices and annual taxes for 107 used homes in Albuquerque from a number of years ago. The resale prices are shown in hundreds of dollars.

When analyzing this data, please:

Test Ho: β1=0 using the test statistic method.

Suppose another house in the same region has just been evaluated to have a resale price of 1005 (in $100), predict the annual tax for this house in 4) and 5).