(The problems are from REGRESSION. Please do every problem. Please use Excel or other computer software to solve the problems. Please provide the evidence of your work and explain your solution. Thank you.)

6.11-2 The final course grade in calculus was predicted on the basis of the student's high school grade point average in mathematics, Scholastic Aptitude Test (SAT) score in mathematics, and score on a mathematics entrance examination. The predicted grades X and the earned grades Y for 10 students are given (2.0 represents a C, 2.3 a C+, 2.7 a B− , etc.).

   (a) Calculate the least squares regression line for these data.
   (b) Plot the points and the least squares regression line on the same graph.
   (c) Find the value of $\widehat{\sigma^2}$.

x	y	x	y
2.0	1.3	2.7	3.0
3.3	3.3	4.0	4.0
3.7	3.3	3.7	3.0
2.0	2.0	3.0	2.7
2.3	1.7	2.3	3.0

6.11-10 Find 95% confidence intervals for α, β, and σ^2 for the data in Exercise 6.11-2.

6.12-2 For the data given in Exercise 6.11-2, with the usual assumptions,

   (a) Find a 95% confidence interval for $\mu(x)$ when $x = 2, 3$, and 4.
   (b) Find a 95% prediction interval for Y when $x = 2, 3$, and 4.

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