Exercises for Splines and Regression

Read Pages 393 – 402

Exercises for Section 5.6 Cubic Spline Interpolation #1, 2, 3, 10, 15
Use MATLAB files for spline computations. Display the coefficients of the cubic pieces in all the problems.

For #1, discuss the question also discuss the type of relationship between z an T implied by the spline.
For #2, discuss the question also discuss the type of relationship between z an p implied by the spline.
For #10 use the MATLAB routines to generate the requested graphs. Include a copy of the graphs as part of your solution.
For #15, include a graph of the error for the natural cubic spline.
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Read Pages 418 – 425

Exercises for Section 5.8 Regression #2, 5, 8, 13, and one of Dr. Hill's problems
Use MATLAB and the matrix approach for computing least squares lines and linearized fits.
Use MATLAB to generate appropriate graphs for #2 and 13

1. For a given data set S, let line L be the least squares line and E_L be the minimum value of the sum of the squares of the deviations. For the same data set D let quadratic Q be the least squares quadratic and E_Q be the minimum value of the sum of the squares of its deviations. Why must $E_Q \leq E_L$?
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