MATH 3P82 Assignment 8

Due: Nov. 7.

1. Using the data provided, find the best (least-square) quartic polynomial (in x) to fit the y values, and construct a 95% confidence interval for each of the five regression coefficients, and for the σ of the error terms.

   Test, at the 1% level of significance, the null hypotheses that $\beta_4 = 0$, $\beta_3 = 0$, ... until you reach the first significant result. Then, discarding all nonsignificant terms, repeat the construction of all 95% confidence intervals for each remaining regression coefficient and the corresponding σ.

2. Using the following table

Sex	M	M	F	M	F	M	M	F	F
Age	46	27	55	40	34	35	35	42	47
Blood Pressure	142	97	156	124	110	113	113	135	141

M	M	M	F	F	M	F	F	F	F	M
56	48	45	35	61	35	42	34	36	48	38
181	147	138	110	181	112	137	118	125	149	124

   fit a regression straight line between Age (the independent variable) and Blood Pressure (the dependent variable), individually for the male and female part of the sample. Test the null hypothesis stating that the corresponding population (i.e. 'model', theoretical) straight lines are identical, against all possible alternatives, at 90% level of significance..