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**Problem 1.**

**(1) Estimated Functions:**

(*Write numerical values for and )*

*e+01*

**(2) Data Visualization:**

*(Insert plot obtained from data in poly.txt. Note that the plot below is not the solution)*

A graph with colored lines and numbers

Description automatically generated

**(3) What degree polynomial does the relationship seem to follow? Please explain your answer.**

Sample answer:

The data seems to best follow a first order polynomial (i.e., a line) which can be seen from the   
low error between the estimated regression function, and the data in the plot above.

**(4) If we measured a new data point, what would be the predicted value of , based on the polynomial identified as the best fit in Question (3)?**

Predicted value for x = 4: 189.717

**Problem 2.**

**(1) Plot the mean squared error as a function of lambda in Ridge Regression:**

*(Insert plot obtained by completing the* ***main*** *function. Note that the plot below is not the solution)*

A graph of a normalized line

Description automatically generated

**(2) Find best lambda:**

Based on the range of Lambda values tested, the best lambda value is , which yields an MSE of as shown on the plot above.

**(3) Find equation of the best fitted model:**

(*Insert numerical values for ’s and )*

**(4) Plot the predicted stock prices and actual stock prices using Google data**

*(Note that the plot below is not the solution)*

A graph with orange and blue lines

Description automatically generated