Yi En Gan (Andrew)

ECE 20875 HW 07

Problem 1

Estimat4ed functions for each n

n = 1
y = 52.158 x – 189.87

n = 2
y = 7.0016 x^2 + 9.3038 x – 239.33

n = 3
y = 0.82014 x^3 + 0.26177 x^2 – 0.010328 x – 175.28

n = 4
y = 0.005988 x^4 + 0.75522 x^3 + 0.23456 x^2 + 1.1764 x – 175.88

n = 5
y = 0.00085x^5 – 0.00470x^4 + 0.7528x^3 + 0.5261x^2 + 0.9659x – 176.84

The degree polynomial of the variable relationship.

The plotted graph shows that models n > 2 seem to fit the original data. It is difficult to decide between the n=3, n=4 and n=5 lines as the data provided is too limited. To ensure accuracy and generalizability of the model, n=3 should be used.

Predicted value of y at x = 2

If x = 2, predicted value of y using n=3 will be -167.69