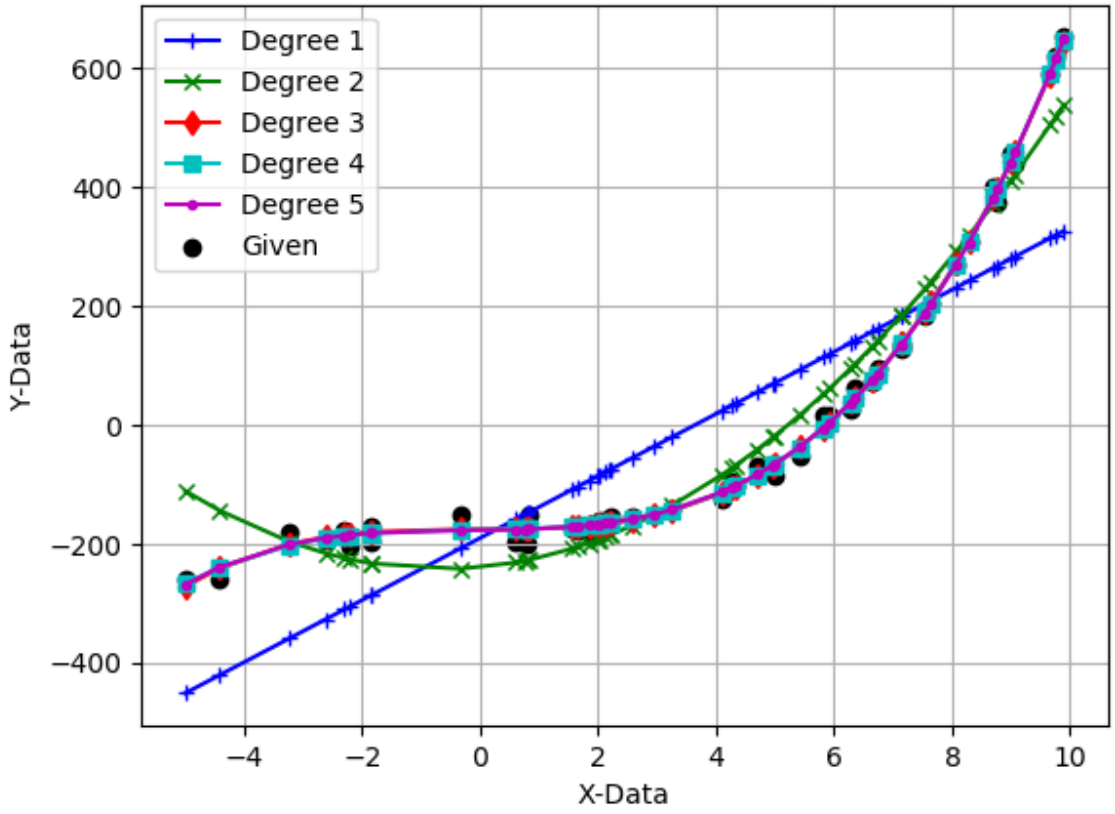
3.1.2) The resulting estimated functions are:

- $y_1(x) = x^1*52.158 + -189.866$
- $y_2(x) = x^2*7.001 + x^1*9.303 + -239.334$
- $y_3(x) = x^3*0.820 + x^2*0.261 + x^1*-0.0103 + -175.277$
- $y_4(x) = x^4*0.005987 + x^3*0.755 + x^2*0.234 + x^1*1.176 + -175.880$
- $y_5(x) = x^5*0.000853 + x^4*-0.00469 + x^3*0.752 + x^2*0.526 + x^1*0.965 + -176.837$

3.1.3)



Based on the following calculated MSE's:

- MSE Degree 1: 817708.592
- MSE Degree 2: 144799.865
- MSE Degree 3: 8620.482
- MSE Degree 4: 8500.447
- MSE Degree 5: 8468.880

The function seems to follow a polynomial of degree 5, which has the lowest Mean Squared Error.

3.1.4) A new datapoint x=2 would have a predicted value of y = -166.826