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Problem1_writeup

Estimated Functions:

$$\hat{y}_1(x) = 21.9919072x + 92.70531403$$

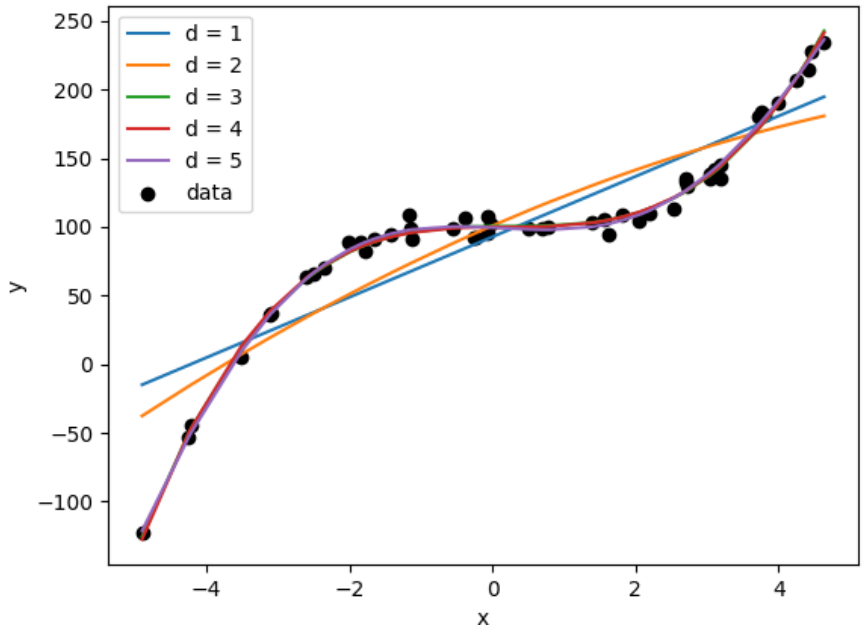
$$\hat{y}_2(x) = -1.15834068x^2 + 22.60822925x + 100.79905593$$

$$\hat{y}_3(x) = 1.66680649x^3 - 1.19334469x^2 + 0.39581103x + 100.43721865$$

$$\hat{y}_4(x) = (-1.43365571e-02)x^4 + (1.66770942e+00)x^3 + (-9.05694362e-01)x^2 + (3.39499592e-01)x + (9.97620446e+01)$$

$$\hat{y}_5(x) = (-2.31737037e-02)x^5 + (-1.96196620e-02)x^4 + (2.27429003e+00)x^3 + (-8.64397166e-01)x^2 + (-2.65996605e+00)x + (9.94138526e+01)$$

Data Visualization:



The data seems to best follow a third order polynomial which can be seen from the low error between the estimated regression function $\hat{y}_3(x)$, and the data in the plot above.

If we measured a new data point, x = 2, the corresponding predicted value would be $\hat{y}_3(2) = 109.78990$