Q.2

Scatter Plot of y vs. x
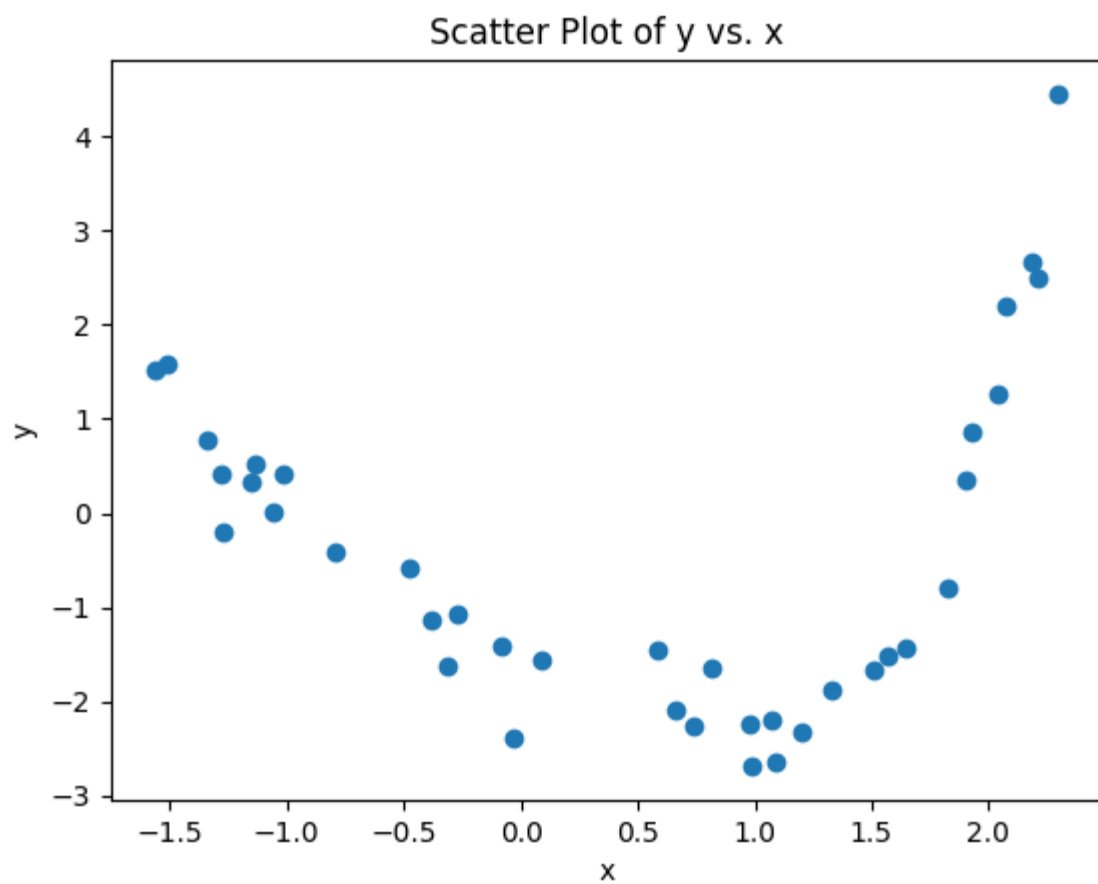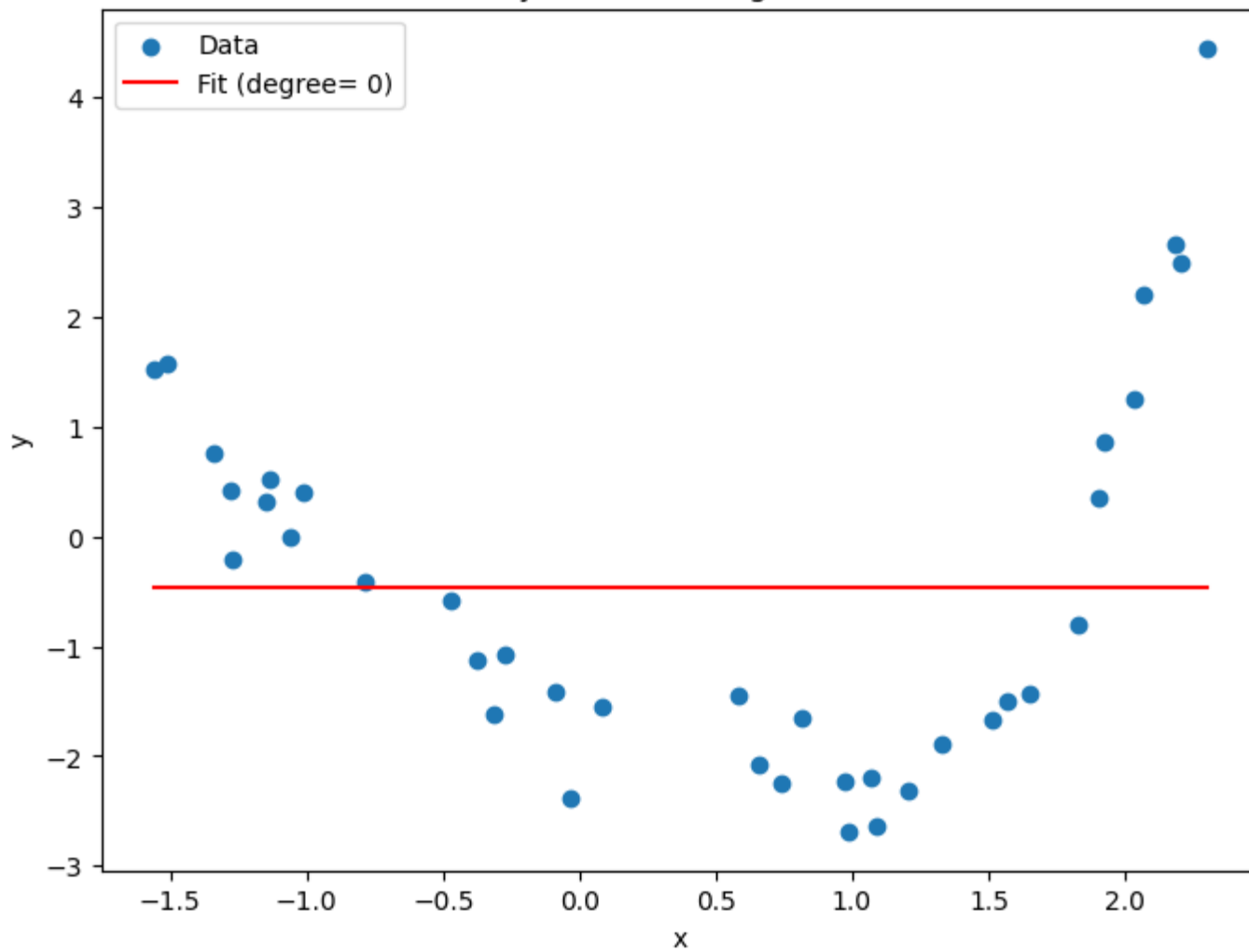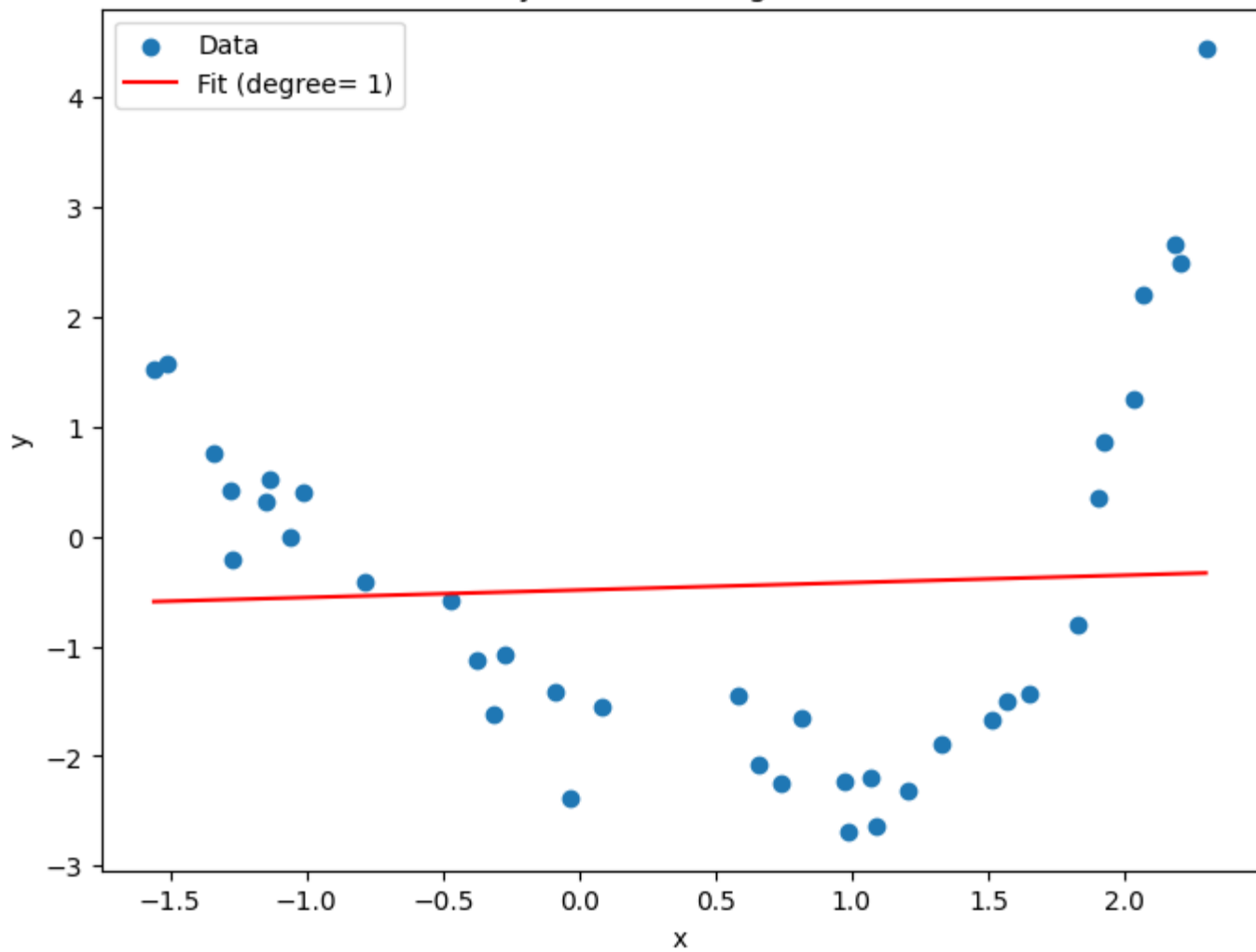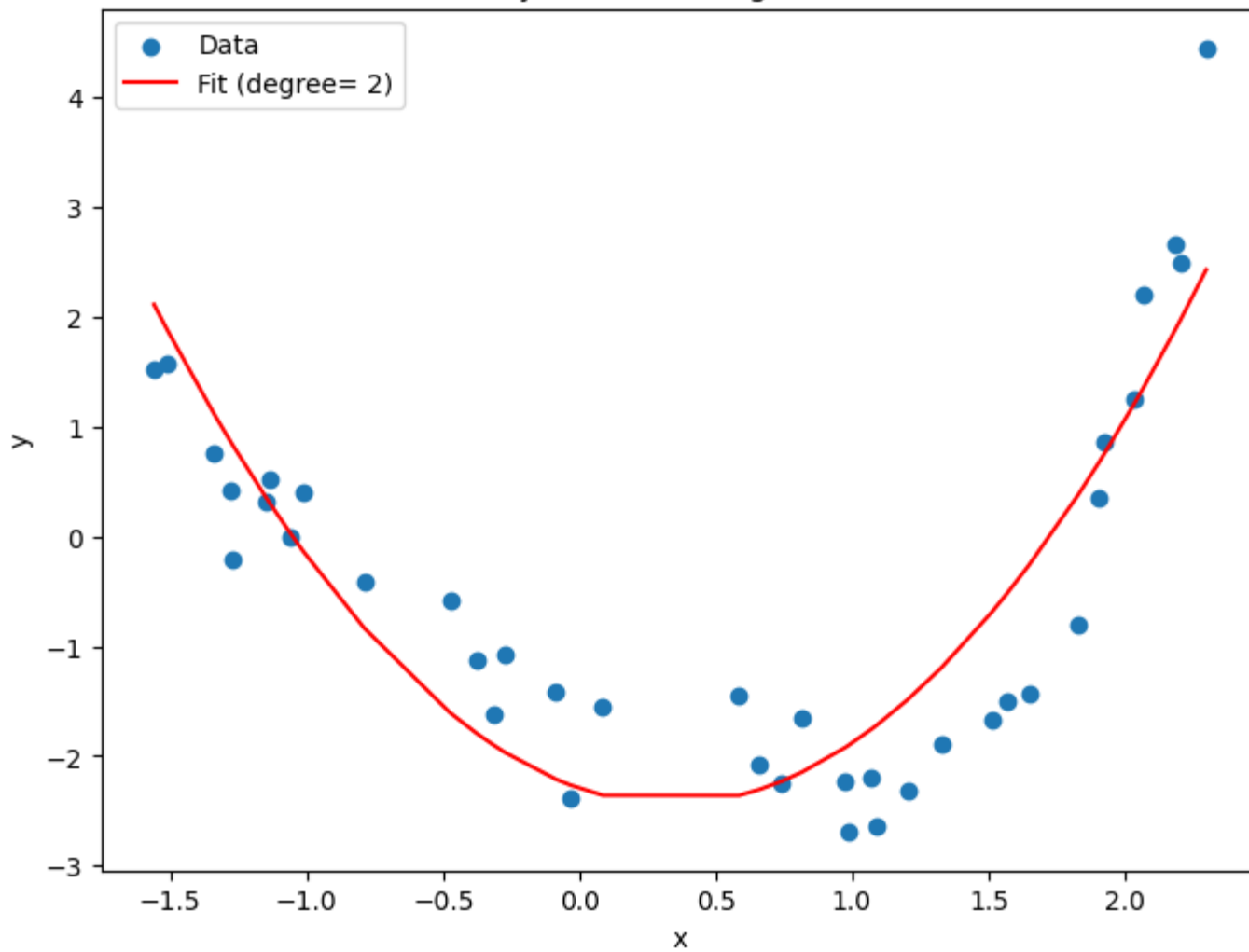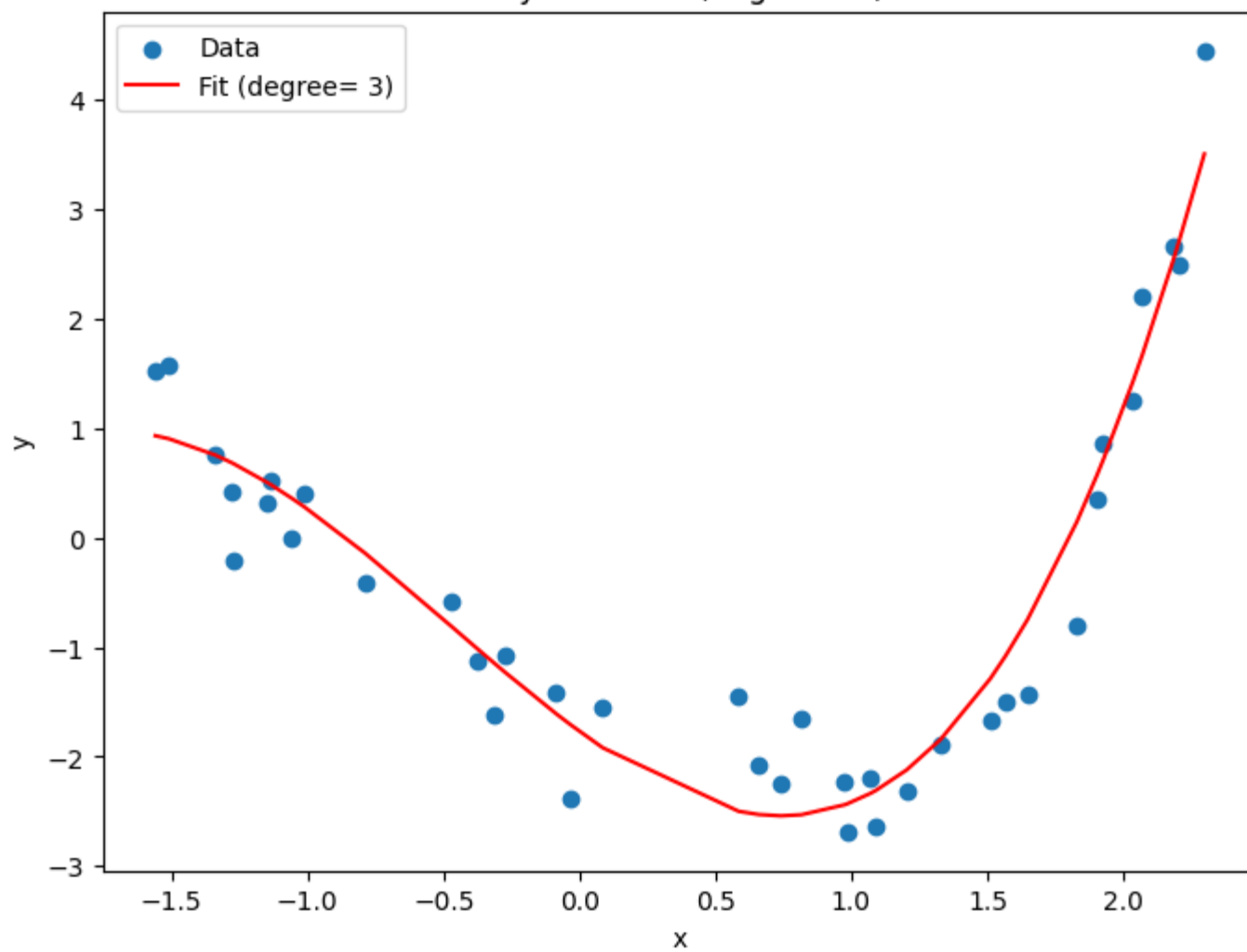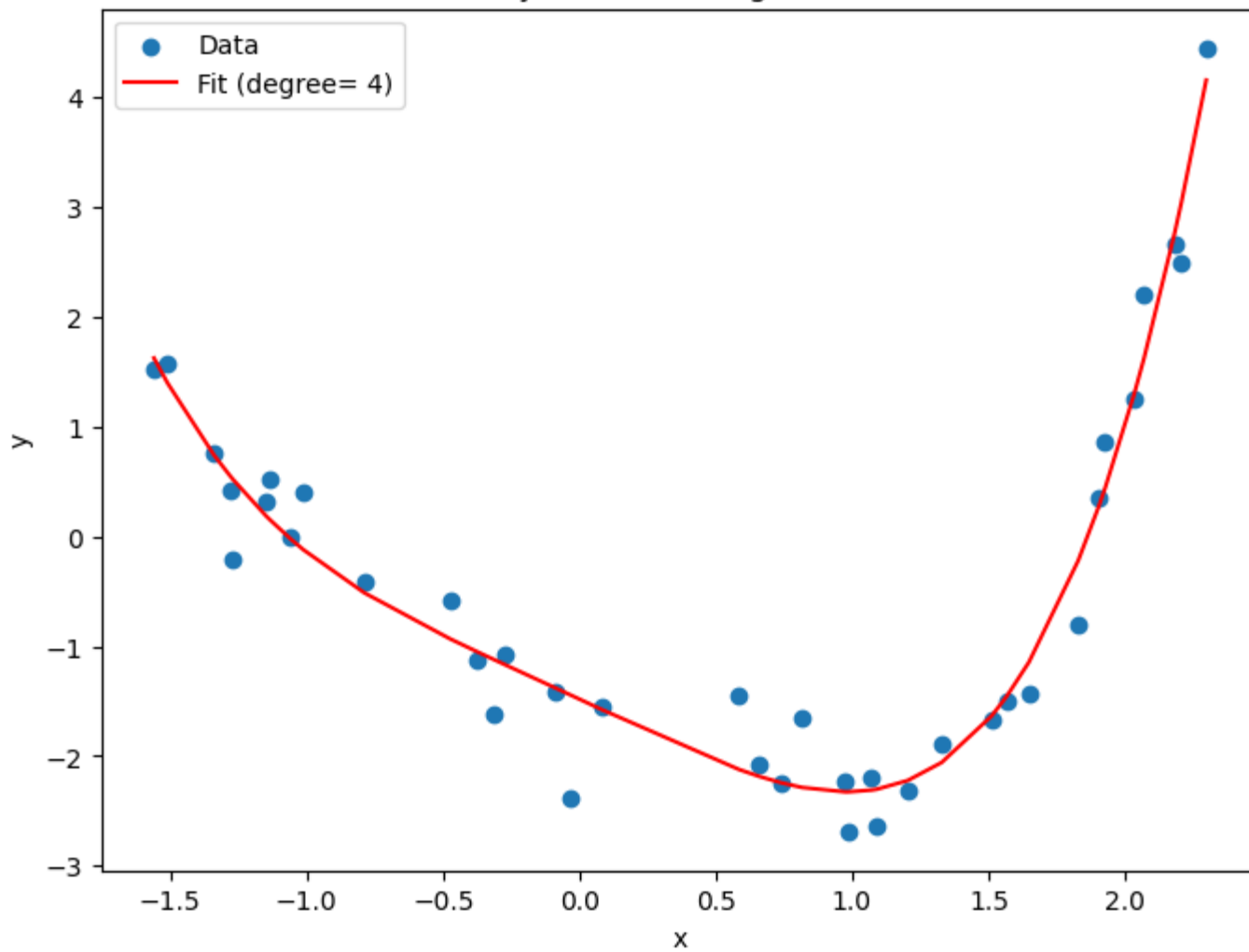
Polynomial Fit (degree= 0)
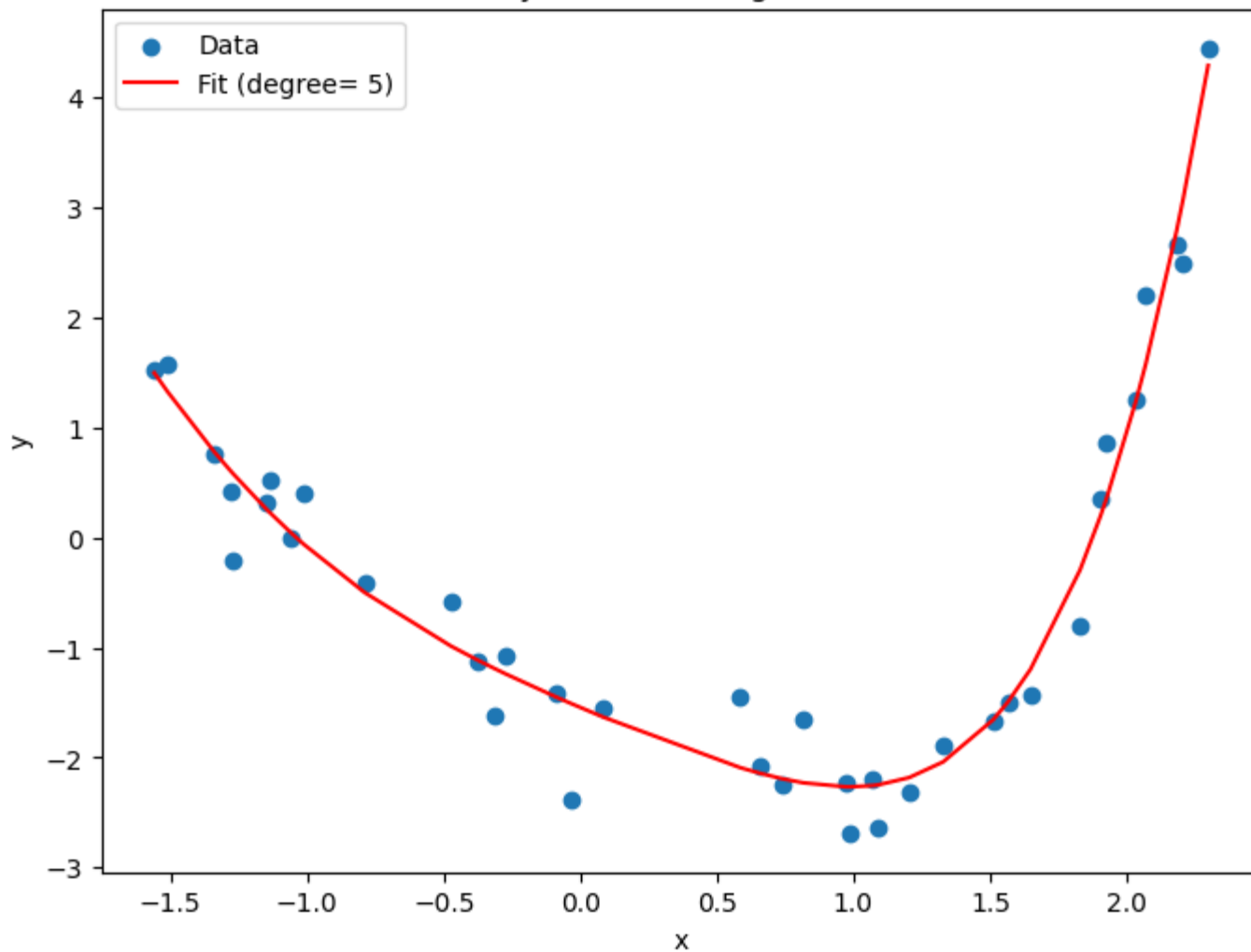
Polynomial Fit (degree= 1)

Polynomial Fit (degree= 2)
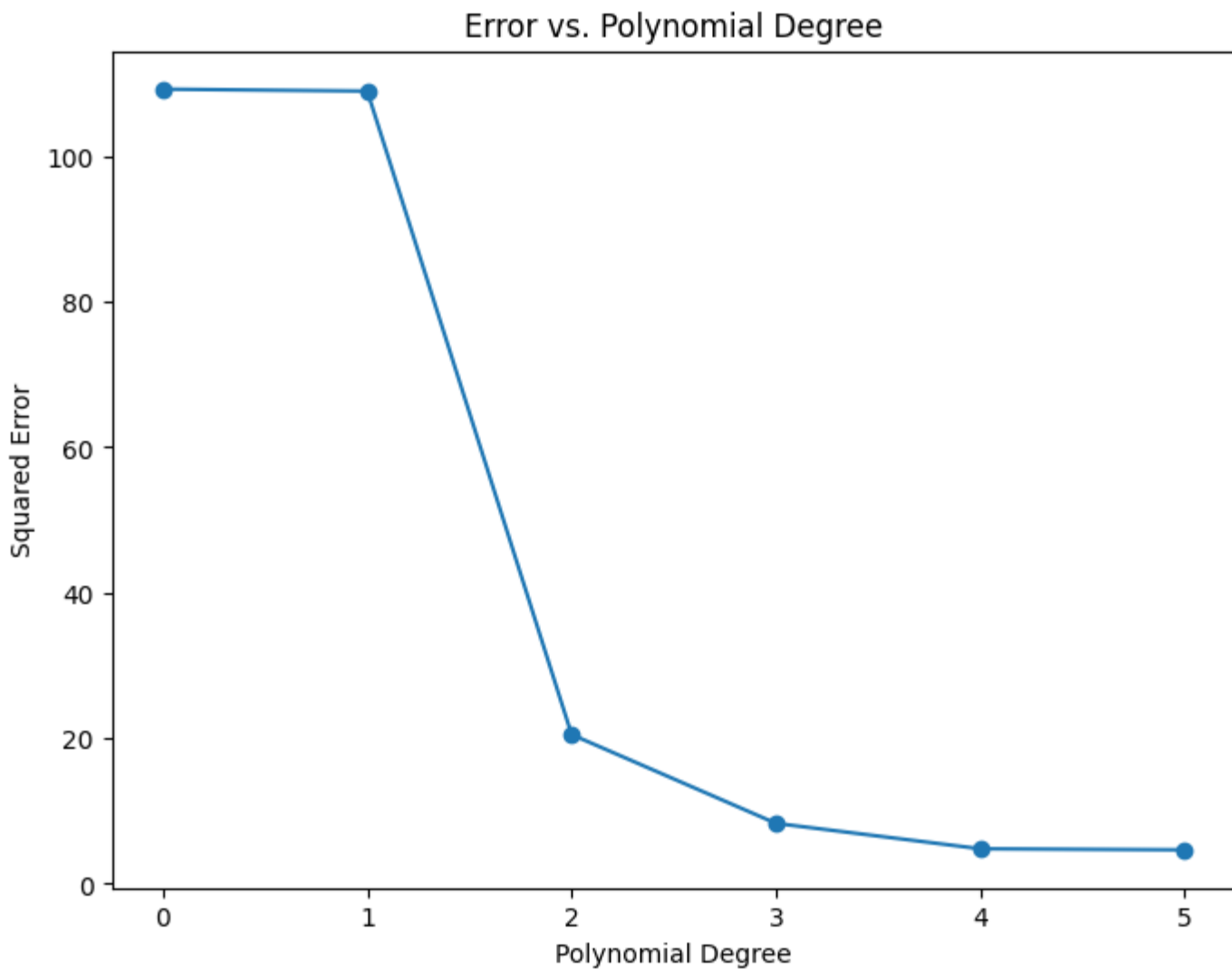
Polynomial Fit (degree= 3)

Polynomial Fit (degree= 4)

Errors:
[109.23483667634054, 108.96598920027574, 20.50016077846658, 8.29315235432474, 4.797360875225383, 4.65014897910382]

Error vs. Polynomial Degree

By looking at the graph and errors data, there is a sharp decrease in error from degree 2 to 3, and then a gradual decrease from degree 3 to 6, but the decrease is not much. From degree 5 to 6, the reduction in error is very small.

So, we can say that the best polynomial degree is 5 because it has the lowest error and the error does not decrease much after that. And also degree 5 gives a good balance between the error and polynomial degree.