Sure, I can provide you with the step-by-step process to find the sum of squared errors (SSE) of a polynomial fit:

Step 1: Collect Data

Collect the data that you want to fit a polynomial to.

Step 2: Choose the Polynomial Degree

Decide on the degree of the polynomial you want to fit. A higher-degree polynomial will generally result in a better fit to the data, but may also lead to overfitting.

Step 3: Fit the Polynomial

Use a method such as least squares regression to fit the polynomial to the data.

Step 4: Calculate Predicted Values

Calculate the predicted values for each data point using the polynomial fit.

Step 5: Calculate SSE

Subtract each predicted value from the actual value for the corresponding data point, square the difference, and sum the squares. This gives you the SSE.

Step 6: Interpret Results

A lower SSE indicates a better fit to the data.

Here's an example to help illustrate this process:

Suppose we have the following data:

| X | Y |

|---|---|

| 1 | 3 |

| 2 | 6 |

| 3 | 8 |

| 4 | 9 |

| 5 | 9 |

We want to fit a quadratic polynomial to this data, so we choose a polynomial of degree 2 (i.e., a quadratic function). We use least squares regression to fit the polynomial to the data and obtain the following equation:

Y = 0.6X^2 - 1.4X + 4.8

We then calculate the predicted values for each data point using this equation and obtain:

X	Y_actual	Y_predicted	(Y_actual - Y_predicted)^2
1	3	3.0	0
2	6	5.6	0.16
3	8	7.8	0.04
4	9	9.0	0
5	9	9.4	0.16

Summing the last column gives us the SSE:

SSE = 0 + 0.16 + 0.04 + 0 + 0.16 = 0.36

Interpreting the result, we can say that this quadratic polynomial provides a reasonably good fit to the data, since the SSE is relatively small.