The Normal Equations for the quadratic fit are

$$\begin{array}{rcrcrcl} c_1 \sum {x_i}^4 & + & c_2 \sum {x_i}^3 & + & c_3 \sum {x_i}^2 & = & \sum {x_i}^2 y_i \\ c_1 \sum {x_i}^3 & + & c_2 \sum {x_i}^2 & + & c_3 \sum x_i & = & \sum x_i y_i \\ c_1 \sum {x_i}^2 & + & c_2 \sum x_i & + & c_3\, m & = & \sum y_i \end{array}$$

Using Maple to solve them in general returns very messy equations:

For example,

$$c_1 = -\frac{\sum {x_i}^2 y_i m \sum {x_i}^2 - \sum {x_i}^2 y_i \left(\sum x_i\right)^2 - \sum y_i \left(\sum {x_i}^2\right)^2 + \sum {x_i}^2 \sum_i x_i \sum x_i y_i - \sum {x_i}^3 \sum x_i y_i m + \sum {x_i}^3 \sum x_i \sum y_i}{-m \sum {x_i}^4 \sum {x_i}^2 + m \left(\sum {x_i}^3\right)^2 + \left(\sum {x_i}^2\right)^3 + \left(\sum_i x_i\right)^2 \sum {x_i}^4 - 2 \sum x_i \sum_i {x_i}^3 \sum {x_i}^2}$$

So in practice, it is better to compute the sums [Excel is good for this] for a given data set and use them in the normal equations. Then use your favorite method to solve the $m$ equations $m$ unknowns [Excel is not so great at this. Maple or RREF on your calculator is probably better].

Ex:

| | $x$ | $y$ | $x^2$ | $x^3$ | $x^4$ | $xy$ | $x^2y$ |
|---|---|---|---|---|---|---|---|
| | 5.4 | 15.06 | | | | | |
| | 8.2 | 38.59 | | | | | |
| | 10.6 | 68.48 | | | | | |
| | 15.5 | 149.14 | | | | | |
| | 21.8 | 301.93 | | | | | |
| | 26.1 | 433.42 | | | | | |
| sums | 87.6 | 1006.62 | 1605.46 | 33763.54 | 765616.5 | 21329.66 | 485298.5 |

$$\begin{array}{rcrcrcl} 765616.4770\, c_1 & + & 33763.536\, c_2 & + & 1605.46\, c_3 & = & 485298.4904 \\ 33763.536\, c_1 & + & 1605.46\, c_2 & + & 87.6\, c_3 & = & 21329.656 \\ 1605.46\, c_1 & + & 87.6\, c_2 & + & 6\, c_3 & = & 1006.62 \end{array}$$

$$\left[\begin{array}{cccc} 765616.4770 & 33763.536 & 1605.46 & 485298.4904 \\ 33763.536 & 1605.46 & 87.6 & 21329.656 \\ 1605.46 & 87.6 & 6 & 1006.62 \end{array}\right]$$