We want to approximate the Gauss Function with third degree polynomial on span .

Let’s call . Therefore

We also denote and

We need to find 4 coefficients . To find them we can define 4 requirements for and receive 4 equations:

We can solve them in matrix form using diagonalization:

Here:

Therefore, continuing:

Here:

Therefore, continuing:

Here:

And also:

Therefore, continuing:

And we get: