

Spline project

Consider the Runge's function $f(x) = \frac{1}{1+25x^2}$ on the interval $x \in [-1, 1]$.

Find the spline interpolating polynomial $s(x)$ using the *spline* command in Matlab (comment on the end conditions in your report). Take an equidistant grid with $n = 100 \cdot 2^k$, $k = 1, 2, \dots$. Plot the error $e(x) = f(x) - s(x)$. Compute the norms of the errors. Where are the errors the largest? How does the error on the whole interval $[-1, 1]$ depend on n (what is the order of the method)?