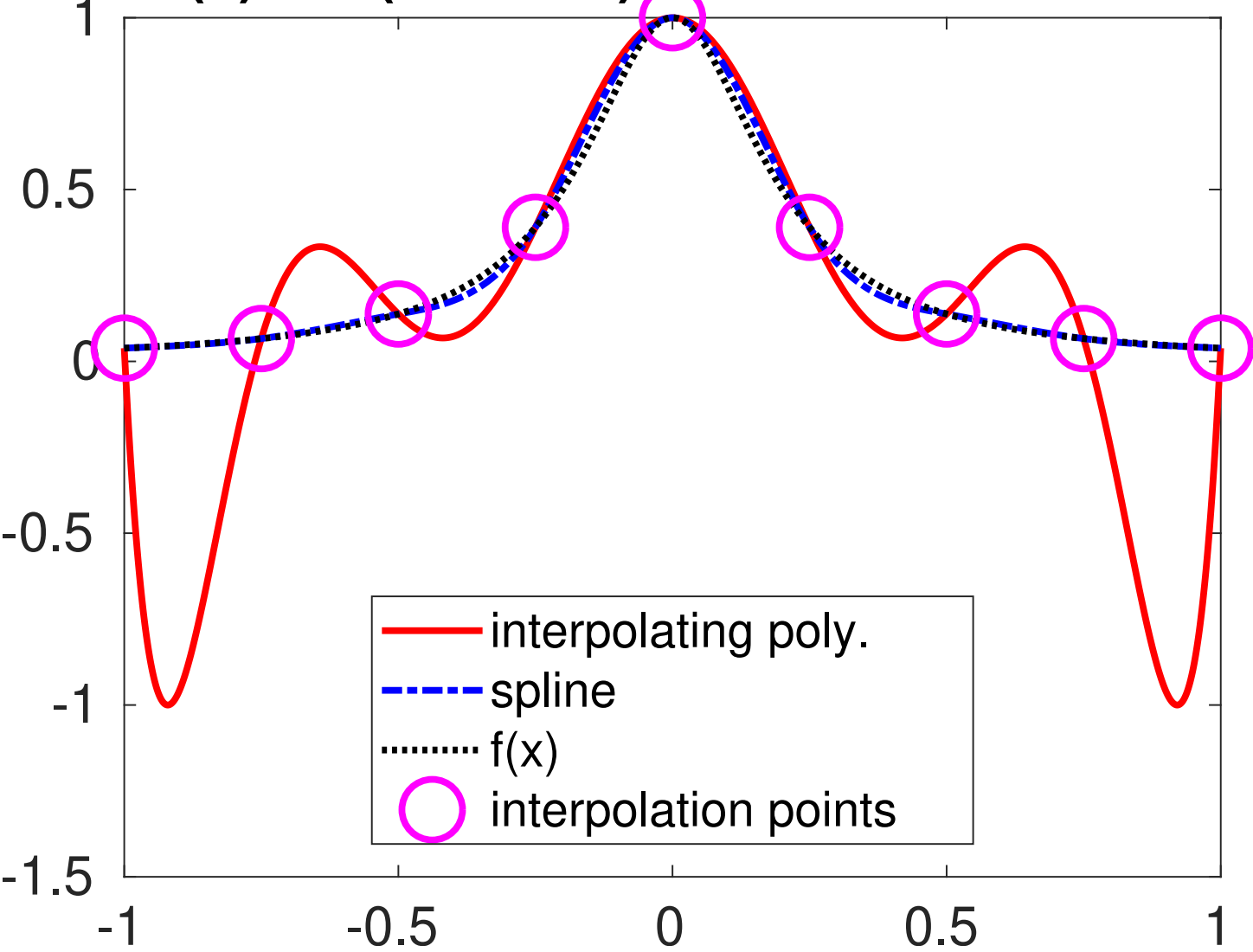
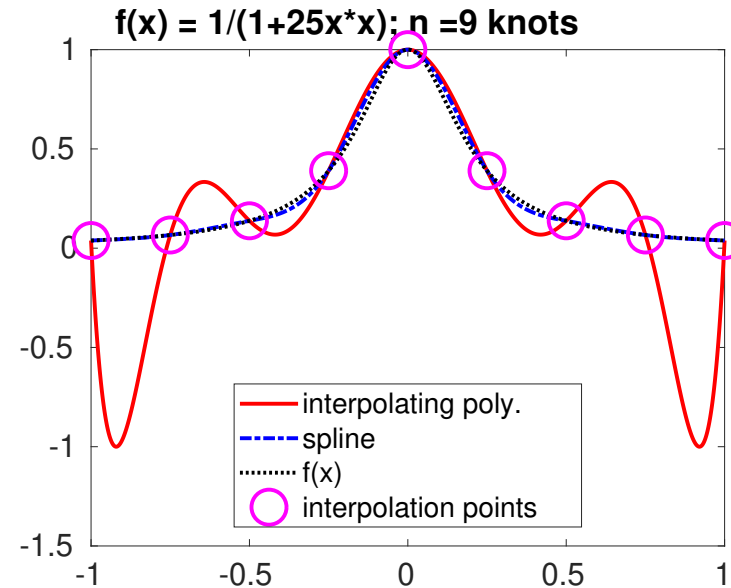


# polynomial interpolation vs. spline interpolation

$f(x) = 1/(1+25x*x); n = 9$  knots



# Polynominterpolation vs. Splineinterpolation



- polynomial interpol. may be a **poor approximation** for **given** knots (e.g., uniform knot distribution)
- polynomial interpolation is **not local**:
  - often, this does **not reflect** properties of the problem under consideration
  - makes the evaluation at each point  $x$  **expensive** (cost:  $O(\text{number knots})$ )
  - error in **one** data point impacts the approximation everywhere