

Spline Interpolation

- Go to <http://www.nr.com>, download chapter 3.3 and read the section on spline interpolation.
- Familiarize yourself with the use of their "spline" and "splint" routines.
- Take the $\eta(a)$ output of the Runge-Kutta test and spline interpolate to find the value at some a that is not at an output time, e.g. $a = 0.001234$. "Spline invert" the relation and find $a(\eta)$ at some η say 100 Mpc. Check your answers against the analytic result.
- Write these spline interpolation routines as a piece of modular code so that your Boltzmann code can efficiently convert between a and η . This is not strictly necessary for a matter-radiation universe where analytic solutions are available but will come in handy if you want to generalize your code.