

I. Interpolation & Numerical Calculus

- Goals:
- How to "read between the lines" of a numerical table
 - (Piecewise) polynomial interpolation
 - Approximation of a function by poly. interp. (Measure of errors)
 - Compute derivatives/integrals approximately

Task: Given a table of some quantity q

i	0	1	2	\dots	n
x_i	0.00	0.51	1.05	\dots	x_n
q_i	0.00	0.22	0.25	\dots	q_n

compute approximations of $q(x)$

ie. easy to evaluate, derive,
integrate

$$q'(x)$$

$$\int_a^b q(x) dx$$

?

no find a simple (& reasonable) function $q(x)$ that matches the data

$$q(x_i) = q_i, \quad i = 0, 1, \dots, n$$