Neville’s Interpolation Example

Find f(x) at x0=8.8 from following data:

x: 7.7, 8.0, 8.3, 8.6, 8.9, 9.2, 9.5, 9.8, 10.1

f(x): 12.82, 15.94, 17.56, 18.21, 18.52, 18.64, 18.76, 18.81, 18.84

Neville’s iterations table:

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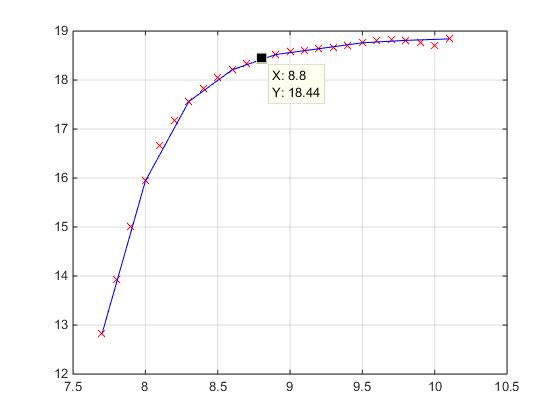
Neville’s formula:

Where:

and are often denoted and

Solution:

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Notes:

* Neville's algorithm is based on the Newton form of the interpolating polynomial and the recursion relation for the divided differences.
* The interval gap does not have to be fixed.
* Can be applied for situation with increasingly higher order Lagrange interpolation polynomials.