:Simpson's rule can be derived by approximating the integrand f (x) (in blue) by the quadratic interpolant P(x) (in red).

1   Simpson's 3/8 rule

Simpson's 3/8 rule is another method for numerical integration proposed by Thomas Simpson. It is based upon a cubic interpolation rather than a quadratic interpolation. Simpson's 3/8 rule is as follows:

$$\int_a^b f(x)dx \approx \frac{h}{48}$$

(1)