**Simpson's rule:**

 \int_{a}^{b} f(x) \, dx \approx \tfrac{b-a}{6}\left[f(a) + 4f\left(\tfrac{a+b}{2}\right)+f(b)\right].

\int_a^b f(x) \, dx\approx\tfrac{h}{3}\bigg[f(x_0)+2\sum_{j=1}^{n/2-1}f(x_{2j})+
4\sum_{j=1}^{n/2}f(x_{2j-1})+f(x_n)
\bigg],