**Trapezoidal rule:**

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

 \int_{a}^{b} f(x)\, dx \approx \frac{h}{2} \sum_{k=1}^{N} \left( f(x_{k+1}) + f(x_{k}) \right){}= \frac{b-a}{2N}(f(x_0) + 2f(x_1) + 2f(x_2) + 2f(x_3) + \dotsb + 2f(x_N) + f(x_{N+1})).