$$\tau_i = \exp(-\sigma(x_i)\Delta x) \qquad \Delta x = (x_N - x_0)/N$$

$$\tau_i^{N-1} = \exp\left(-\int_{x_i}^{x_N} \sigma(s_i)ds\right) = \prod_{j=i}^{N-1} \tau_j$$