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3 $x_i = \dfrac{-1+1}{2} + \dfrac{1+1}{2} \cos \dfrac{(2i-1)\pi}{2n} = \cos \dfrac{(2i-1)\pi}{2n}$

∴ $x_1 = \cos \dfrac{\pi}{10}$ $x_2 = \cos \dfrac{3\pi}{10}$ $x_3 = \cos \dfrac{5\pi}{10}$ $x_4 = \cos \dfrac{7\pi}{10}$ $x_5 = \cos \dfrac{9\pi}{10}$

计算插值多项式得 $Q_5(x) = 1 + 0.997317x + 0.498856x^2 + 0.177335x^3 + 0.043434x^4$

$|e^x - Q_5(x)| \le \dfrac{|(x-x_1)(x-x_2)(x-x_3)(x-x_4)(x-x_5)|}{5!} \cdot e = \dfrac{e}{5! \, 2^4} = 0.0014187$

可以精确到小数点后两位.

4. $x_i = \dfrac{1+a b}{2} + \dfrac{1+0.6}{2} \cos \dfrac{(2i-1)\pi}{2n} = 0.8 + 0.2\cos \dfrac{(2i-1)\pi}{2n}$

$x_1 = 0.8+0.2\cos\dfrac{\pi}{10}$ $\qquad$ $x_2 = 0.8+0.2\cos\dfrac{3\pi}{10}$ $\qquad$ $x_3 = 0.8+0.2\cos\dfrac{5\pi}{10}$

$x_4 = 0.8+0.2\cos\dfrac{7\pi}{10}$ $\qquad$ $x_5 = 0.8+0.2\cos\dfrac{9\pi}{10}$

计算插值多项式得 $Q_4(x) = 1.00495 + 0.968827x + 0.577005x^2 + 0.07468x^3 + 0.0928355x^4$

$|e^x - Q_5(x)| \le \dfrac{|(x-x_1)(x-x_2)(x-x_3)(x-x_4)(x-x_5)|}{5!}\, e \le \dfrac{0.2^5 e}{5!\,2^4} = 4.53047\times10^{-7}$

可以精确到小数点后6位.