Numerical Methods – Q3: Integration [Practice/M]
(12/6/21)

Obtain the extrapolation formula $T \approx T_{2n} + \frac{1}{3}(T_{2n} - T_n)$

from $T_{2n} - T \approx \frac{T_n - T}{4}$

Solution

$$T_{2n} - T \approx \frac{T_n - T}{4}$$

$$\Rightarrow T_{2n} - \frac{T_n}{4} \approx \frac{3T}{4}$$

$$\Rightarrow T \approx \frac{4T_{2n}}{3} - \frac{T_n}{3} = T_{2n} + \frac{1}{3}\left(T_{2n} - T_n\right)$$