Comparison of Euler's and Ralston's Methods

IVP:

$$\frac{dT}{dt} = -k(T - T_a),$$

$k = 0.25 \text{ min}^{-1}, \quad T_a = 20 \text{ °C},$

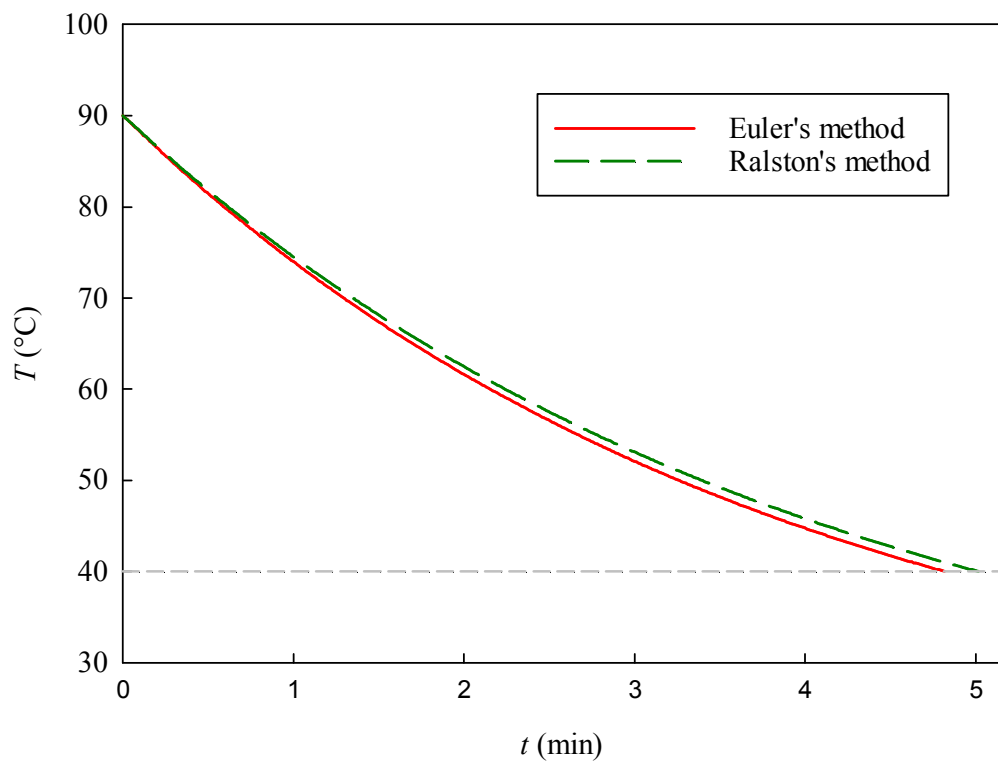$T(0) = 90 \text{ °C}.$

2nd-Order RK
Ralston's Method

Fig. 1: Temperature vs. time generated by Ralston's and Euler's methods. Number of segments = 16.

Time to reach 40 °C

Euler's method: 4.8 min

Ralston's method: 5.0 min