Stated problem

Given: Differential Equation

$$f(t, T(t)) = \frac{dT}{dt} = -k(T(t) - T_{env}); \tag{1}$$

$$t_0 = 0, \quad T(t_0) = T_0. \tag{2}$$

Find:

$$T(t), \quad t >= t_0.$$

Euler's method of numerical integration

$$\Delta x = h = 0.001 \quad s, \tag{3}$$
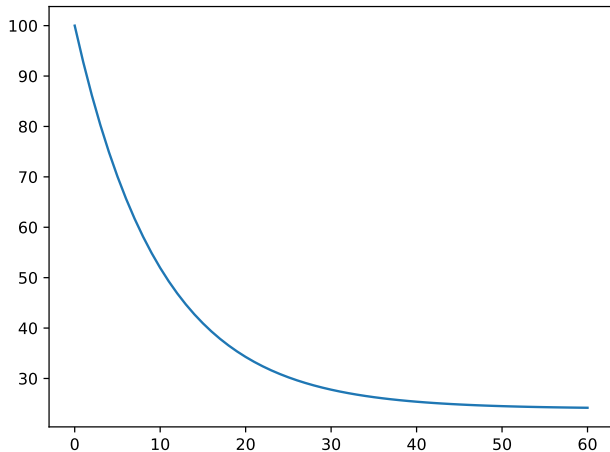
$$t_i = t_0 + nh, \tag{4}$$

$$dT(t) = f(t, T(t))dt. \tag{5}$$

$$\Delta T(t_{i+1}) = f(t_i, T(t_i)) \cdot h, \tag{6}$$

$$T(0) = T_{env}, \quad t_0 = 0. \tag{7}$$

Result of the modeling

Conclusion

http://edu.irnok.net/doku.php?id=euler:start