



1. $y(x) - \lambda \int_a^b (x-t)y(t) dt = f(x).$

Solution:

$$y(x) = f(x) + \lambda(A_1x + A_2),$$

where

$$A_1 = \frac{12f_1 + 6\lambda(f_1\Delta_2 - 2f_2\Delta_1)}{\lambda^2\Delta_1^4 + 12}, \quad A_2 = \frac{-12f_2 + 2\lambda(3f_2\Delta_2 - 2f_1\Delta_3)}{\lambda^2\Delta_1^4 + 12},$$

$$f_1 = \int_a^b f(x) dx, \quad f_2 = \int_a^b x f(x) dx, \quad \Delta_n = b^n - a^n.$$

Reference

Polyanin, A. D. and Manzhirov, A. V., *Handbook of Integral Equations*, CRC Press, Boca Raton, 1998.