

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.

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