

29.
$$\int_a^x J_0(\lambda(x-t))y(t) dt = f(x).$$

Here, $J_{\nu}(z)$ is the Bessel function of the first kind and f(a)=0. Solution:

$$y(x) = \frac{1}{\lambda} \left(\frac{d^2}{dx^2} + \lambda^2 \right)^2 \int_a^x (x - t) J_1(\lambda(x - t)) f(t) dt.$$

Reference

1

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

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