

26.
$$\int_{a}^{x} \{\cos[\lambda(x-t)] + b\} y(t) dt = f(x), \quad f(a) = 0.$$

For b = 0, see equation 1.24. For b = -1, see equation 1.25.

 1° . Solution for b(b+1) > 0:

$$y(x) = \frac{f_x'(x)}{b+1} + \frac{\lambda^2}{k(b+1)^2} \int_a^x \sin[k(x-t)] f_t'(t) \, dt, \qquad \text{where} \quad k = \lambda \sqrt{\frac{b}{b+1}}.$$

 2° . Solution for b(b+1) < 0:

$$y(x) = \frac{f_x'(x)}{b+1} + \frac{\lambda^2}{k(b+1)^2} \int_a^x \sinh[k(x-t)] f_t'(t) \, dt, \qquad \text{where} \quad k = \lambda \sqrt{\frac{-b}{b+1}}.$$

Reference

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

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