



11. $y(x) + \int_a^b |x-t|f(t, y(t)) dt = g(x), \quad a \leq x \leq b.$

The solution of this integral equation is determined by the solution of the second-order ordinary differential equation

$$y''_{xx} + 2f(x, y) = g''_{xx}(x)$$

under the boundary conditions

$$\begin{aligned} y'_x(a) + y'_x(b) &= g'_x(a) + g'_x(b), \\ y(a) + y(b) + (b-a)[g'_x(b) - y'_x(b)] &= g(a) + g(b). \end{aligned}$$

Reference

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