

3.
$$\int_a^x (x-t)^n y(t) dt = f(x), \qquad n = 1, 2, ...$$

It is assumed that the right-hand of the equation satisfies the conditions $f(a) = f'_x(a) = \cdots = f_x^{(n)}(a) = 0$. Solution: $y(x) = \frac{1}{n!} f_x^{(n+1)}(x)$.

Reference

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

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