

12.
$$\int_{a}^{x} \left[e^{\lambda(x-t)} - e^{\mu(x-t)} \right] y(t) dt = f(x), \qquad f(a) = f'_{x}(a) = 0.$$

Solution:

$$y(x) = \frac{1}{\lambda - \mu} \left[f_{xx}'' - (\lambda + \mu) f_x' + \lambda \mu f \right], \qquad f = f(x).$$

Reference

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

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