

5.
$$\int_0^x f\left(\frac{t}{x}\right) y(t) y(x-t) dt = Ax^{\mu} e^{\lambda x}.$$

Solutions:

$$y(x) = \pm \sqrt{\frac{A}{I}} x^{\frac{\mu-1}{2}} e^{\lambda x}, \qquad I = \int_0^1 f(z) z^{\frac{\mu-1}{2}} (1-z)^{\frac{\mu-1}{2}} dz.$$

Reference

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

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http://eqworld.ipmnet.ru/en/solutions/ie/ie0505.pdf