

$$2. \quad \int_0^x y(t)y(x-t)\,dt = A^2x^{\mu}e^{\lambda x}.$$

Solutions:

$$y(x) = \pm \frac{A\sqrt{\Gamma(\mu+1)}}{\Gamma(\frac{\mu+1}{2})} x^{\frac{\mu-1}{2}} e^{\lambda x},$$

where $\Gamma(z)$ is the gamma function.

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/ie0502.pdf