3. $y(x) + \lambda\int_a^x (x-t)^2 y(t)\,dt = f(x).$

Solution:

$$y(x) = f(x) - \int_a^x R(x-t)f(t)\,dt,$$

where

$$R(x) = \tfrac{2}{3}ke^{-2kx} - \tfrac{2}{3}ke^{kx}\left[\cos\left(\sqrt{3}\,kx\right) - \sqrt{3}\sin\left(\sqrt{3}\,kx\right)\right], \qquad k = \left(\tfrac{1}{4}\lambda\right)^{1/3}.$$

Reference

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

