



4. $y(x) + \int_a^b g(t)y(x)y(t) dt = f(x).$

Solutions:

$$y_1(x) = \lambda_1 f(x), \quad y_2(x) = \lambda_2 f(x),$$

where λ_1 and λ_2 are the roots of the quadratic equation

$$I\lambda^2 + \lambda - 1 = 0, \quad I = \int_a^b f(t)g(t) dt.$$

Reference

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