3. $\displaystyle\int_0^\infty f(t)y(t)y\left(\frac{x}{t}\right)dt = Ax^\lambda.$

Solutions:

$$y_1(x) = \sqrt{\frac{A}{I}}\,x^\lambda, \quad y_2(x) = -\sqrt{\frac{A}{I}}\,x^\lambda, \qquad I = \int_0^\infty f(t)\,dt.$$

Reference

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

