



17. $y(x + b_n) + a_{n-1}y(x + b_{n-1}) + \dots + a_1y(x + b_1) + a_0y(x) = 0.$

There are particular solutions of the form $y(x) = \lambda_k^x$, where the λ_k are roots of the transcendental (or algebraic) equation

$$\lambda^{b_n} + a_{n-1}\lambda^{b_{n-1}} + \dots + a_1\lambda^{b_1} + a_0 = 0.$$

Reference

Polyanin, A. D. and Manzhirov, A. V., *Handbook of Integral Equations: Exact Solutions (Supplement. Some Functional Equations)* [in Russian], Faktorial, Moscow, 1998.