18. $y\left(x^{a_n}\right) + b_{n-1}y\left(x^{a_{n-1}}\right) + \ldots + b_1 y\left(x^{a_1}\right) + b_0 y(x) = 0.$

There are particular solutions of the form $y(x) = C|\ln x|^p$, where C is an arbitrary constant, and p is a root of the transcendental equation $|a_n|^p + b_{n-1}|a_{n-1}|^p + \cdots + b_1|a_1|^p + b_0 = 0$.

Reference

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

