

20. y(x) - y(a/x) = 0.

Solution:

$$y(x) = \Phi(x, a/x),$$

where $\Phi(x, z) = \Phi(z, x)$ is any symmetric function with two arguments.

Reference

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

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http://eqworld.ipmnet.ru/en/solutions/fe/fe1120.pdf