

24. y(x) - y(a/x) = f(x).

The function f(x) is assumed to satisfy the condition f(x) = -f(a/x). Solution:

$$y(x) = \frac{1}{2}f(x) + \Phi(x, a/x),$$

where $\Phi(x, z) = \Phi(z, x)$ is any symmetric function of 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.

Copyright © 2004 Andrei D. Polyanin

http://eqworld.ipmnet.ru/en/solutions/fe/fe1124.pdf