

18. y(x) + g(x)y(a-x) = f(x).

Solution:

$$y(x) = \frac{f(x) - g(x)f(a - x)}{1 - g(x)g(a - x)}.$$

References

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/fe1118.pdf