

51. 
$$y(x) + y(\omega(x)) = f(x)$$
, where  $\omega(\omega(x)) = x$ .

The function f(x) is assumed to satisfy the condition  $f(x) = f(\omega(x))$ . Solution:

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

where  $\Phi(x, z) = -\Phi(z, x)$  is any antisymmetric 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.

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