17. $y(x) - y(a - x) = f(x)$.

Here the function $f(x)$ is assumed to satisfy the condition $f(x) = -f(a - x)$.

Solution:

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

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.

