



**15.  $y(x) + y(a - x) = b.$**

Solution:

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

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

Particular solutions:

$$y(x) = b \sin^2\left(\frac{\pi x}{2a}\right),$$

$$y(x) = b \cos^2\left(\frac{\pi x}{2a}\right).$$

### Reference

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