



38. $y(x) + y(\sqrt{a^2 - x^2}) = b, \quad 0 \leq x \leq a.$

Solution:

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

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.