36. $y(x) - y\left(\sqrt{a^2 - x^2}\right) = 0, \qquad 0 \le x \le a.$

Solution:

$$y(x) = \Phi\left(x, \sqrt{a^2 - x^2}\right),$$

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

