



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

Solution:

$$y(x) = \frac{f(x) - g(x)f(\sqrt{a^2 - x^2})}{1 - g(x)g(\sqrt{a^2 - x^2})}.$$

References

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