



11. $F(x, y(x), y(\omega(x))) = 0$, where $\omega(\omega(x)) = x$.

On substituting $\omega(x)$ for x , we obtain $F(\omega(x), y(\omega(x)), y(x)) = 0$. On eliminating $y(\omega(x))$ from this equation and the original one, we arrive at an ordinary algebraic (or transcendental) equation of the form $\Psi(x, y(x)) = 0$.

The solution of the original functional equation, $y = y(x)$, is determined parametrically by the system of two algebraic (transcendental) equations

$$F(x, y, t) = 0, \quad F(\omega(x), t, y) = 0,$$

where t is the parameter.

Reference

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