4. $\boldsymbol{F\big(x, y(x), y(a/x)\big) = 0}$**.**

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

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

$$F(x, y, t) = 0, \qquad F(a/x, t, y) = 0,$$

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.

