7.　$y^2(x) + Ay(x)y(a-x) + By^2(a-x) + Cy(x) + Dy(a-x) = f(x).$

This is a special case of equation 2, Subsection 2.3.

　　　Solution in parametric form:

$$y^2 + Ayw + Bw^2 + Cy + Dw = f(x),$$
$$w^2 + Ayw + By^2 + Cw + Dy = f(a-x).$$

Eliminating w, the solution can be represented in implicit form.

Reference

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

　　　　　　　　　　http://eqworld.ipmnet.ru/en/solutions/fe/fe2107.pdf