7. $F\left(x,\ y(x),\ y\left(\dfrac{bx+\beta}{a-x}\right)\right)=0, \qquad \beta=a^2+ab+b^2.$

This is a special case of equation 13 of the current subsection.

Reference

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

