

10. y(y(y(x))) - x = 0.

This is a special case of equation 20 below in this subsection.

Particular solutions:

$$y_1(x) = -\frac{C^2}{C+x}$$
, $y_2(x) = C - \frac{C^2}{x}$, $y_3(x) = C_1 - \frac{(C_1 + C_2)^2}{C_2 + x}$,

where C, C_1 , and C_2 are arbitrary constants.

Reference

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

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