

11. 
$$y(ax) - by(x) = 0$$
,  $a, b > 0$ .

Solution:

$$y(x) = \Theta(\ln x)x^{\lambda}, \qquad \lambda = \frac{\ln b}{\ln a},$$

where  $\Theta(z) = \Theta(z + \ln a)$  is an arbitrary periodic function with period  $\ln a$ .

For  $\Theta(z) \equiv \text{const}$ , there is a particular solution  $y(x) = Cx^{\lambda}$ , where C is an arbitrary constant.

## Reference

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

Copyright © 2004 Andrei D. Polyanin

http://eqworld.ipmnet.ru/en/solutions/fe/fe1111.pdf