

14. $f(ax, a^{\beta}y) = a^{\gamma}f(x, y)$.

Here, a is an arbitrary number $(a\neq 0)$ and β and γ are some constants. Solution:

$$f(x,y) = x^{\gamma} \Phi(yx^{-\beta}),$$

where $\Phi(x)$ is an arbitrary function.

Reference

Aczél, J. and Dhombres, J., Functional Equations in Several Variables, Cambridge Univ. Press, Cambridge, 1989.

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http://eqworld.ipmnet.ru/en/solutions/fe/fe3114.pdf