

11. f(ax, ay) = f(x, y).

Here, a is an arbitrary number $(a \neq 0)$. Solution:

$$f(x,y) = \Phi(y/x),$$

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

References

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