

9. 
$$\left(\frac{f^2(x)+f^2(y)}{2}\right)^{1/2}=f\left(\left(\frac{x^2+y^2}{2}\right)^{1/2}\right)$$
.

Solution:

$$f(x) = (ax^2 + b)^{1/2},$$

where a > 0 and b > 0 are arbitrary constants.

## Reference

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

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