

7.
$$f((x^n + y^n)^{1/n}) = f(x) + f(y)$$
.

Solution:

$$f(x) = Cx^n,$$

where ${\cal C}$ is an arbitrary constant.

Reference

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

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