

10. 
$$f(1-x) + (1-x)^{\alpha} f\left(\frac{y}{1-x}\right) = f(y) + (1-y)^{\alpha} f\left(\frac{x}{1-y}\right)$$
.

Here, x, y, x+y can assume values from zero to one, and  $\alpha \neq 0, 1, 2$ . Solution:

$$f(x) = C[x^{\alpha} + (1-x)^{\alpha} - 1],$$

where 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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