



Exact Solutions > Functional Equations > Nonlinear Functional Equations with Several Independent Variables > Lobachevsky Equation

8. $f(x + y)f(x - y) = f^2(x)$.

Lobachevsky equation.

Solution:

$$f(x) = C_1 \exp(C_2 x),$$

where C_1 and C_2 are arbitrary constants.

Reference

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

Lobachevsky Equation

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<http://eqworld.ipmnet.ru/en/solutions/fe/fe4108.pdf>