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functional equation

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A *functional equation* is an equation whose unknowns are functions.

$f(x + y) = f(x) + f(y)$, $f(x \cdot y) = f(x) \cdot f(y)$ are examples of such equations. The systematic study of these didn't begin before the 1960's, although various mathematicians have been studying them before, including Euler and Cauchy just to mention a few.

Functional equations appear many , for example, the gamma function and Riemann's zeta function both satisfy functional equations.