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**Analytical and asymptotic properties of solutions of a non-homogeneous functional differential equation**

Consider a nonhomogeneous functional differential equation

$$y'(x) = ay(qx) + by(x) + g(x),$$

where the nonhomogeneous term $g$ is a rational function, which can be discussed in the following three cases: polynomials, fractions of singularities at 0, and fractions of singularities at a nonconstant constant. We investigate the existence, analytic and asymptotic properties of knowledge in terms of these three cases respectively.