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On asymptotic behaviour of positive solutions of $x'' = -t^{\alpha\lambda-2}x^{1+\alpha}$ with $\alpha > \lambda_0, -1 < \lambda < 0$.

(English) [Zbl 1300.34127](#)

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Summary: We consider an initial value problem of the differential equation denoted in the title, and show the domain of its positive solution and the analytical expressions of this valid in the neighbourhoods of the ends of the domain. This is done for all initial conditions.

MSC:

[34D05](#) Asymptotic properties of solutions to ordinary differential equations

[34A12](#) Initial value problems, existence, uniqueness, continuous dependence and continuation of solutions to ordinary differential equations

Keywords:

the Emden differential equation; an initial value problem; a two dimensional autonomous system; asymptotic behaviour; analytical expressions

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