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On solutions of $x'' = t^{-2}x^{1+\alpha}$ with $\alpha < 0$. (English) Zbl 1421.34011
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Summary: As a continuation work, we consider a second order nonlinear differential equation denoted in the title. We show the domains of its solutions and have analytical expressions valid in the neighbourhoods of the ends of these domains. In this way, we clarify asymptotic behaviour of all solutions. We then find a regular varying solution and represent this with the help of an asymptotic expansion of a solution of a nonlinear differential equation with an irregular singular point.

MSC:

[34A34](#) Nonlinear ordinary differential equations and systems

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

Keywords:

second-order nonlinear differential equation; asymptotic behaviour; analytical expressions

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