

Oscillation of the even order delay differential equation

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In this work we offer criteria for oscillation of the even order delay differential equation

$$y^{(n)}(t) + p(t)y(ct) = 0.$$

We provide detail analysis of the properties of this equation and using suitable comparison technique we offer necessary and sufficient conditions for oscillation of studied equation. We compare studied equation with n-th order Euler differential equation with delay. The results obtained fulfill the gap in the oscillation theory.

References

- [1] *O. Arino, I. Gyori*: Necessary and sufficient condition for oscillation of a neutral differential system with several delays. *J. Differ. Equations* 81 (1989), 98–105.
- [2] *M. R. S. Kulenovic*: Oscillation of the Euler differential equation with delay. *Czech. Math. J.* 45 (1995), 1–6.
- [3] *B. Baculíková, J. Džurina*: Oscillation theorems for second order neutral differential equations. *Electron. J. Qual. Theory Differ. Equ.* 74 (2011), 1–13.