

Neutral delay differential equations: An improved approach and its applications in the oscillation theory

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August 25, 2020

Abstract

The objective of this study is to establish new sufficient criteria for the oscillation of the 2nd-order neutral equation $\left(r \left(z^{\prime} \right)^{\alpha} \right)^{\prime} \left(t \right) + q \left(t \right) x^{\beta} \left(\sigma \left(t \right) \right) = 0$, where $t \geq t_0$ and $z \left(t \right) = x \left(t \right) + p x \left(\tau \left(t \right) \right)$. We improve the known criteria by establishing a new relationship between the solution x and the corresponding function z . To show the importance of our results, we provide two examples.

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