Application of the Decomposition Method of Adomian for Solving the Pantograph Equation of Order *m*

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In many fields of the contemporary science and technology, systems with delaying links often appear. By a delay differential equation (DDE), we mean an evolutionary system in which the (current) rate of change of the state depends on the historical status of the system. Delay models play a relevant role in different fields such as biology, economy, control, and electrodynamics and hence have been attracted a lot of attention of the researchers in recent years. In this study, the numerical solution of a well-known delay differential equation, namely, the pantograph equation is investigated by means of the Adomian decomposition method and then a numerical evaluation is included to demonstrate the validity and applicability of this procedure.

Key words: Delay Differential Equations; Pantograph Equation of Order *m*;
Adomian Decomposition Method; Semi-Analytical Approach.