

Comparing linear and nonlinear differential equations of differential transformation method by other numerical methods

ABSTRACT

In this study, we solve fifth-order boundary value problems by using the DTM for linear and nonlinear differential equations and compare the results with other methods such as Adomian Decomposition Method (ADM), Noor Decomposition Method and Variational Iteration Method. We provide several numerical examples in order to show the accuracy of the method. Further, we also solve sixth-order nonlinear boundary value problems and compare the result to ADM. The present study shows that the DTM is able to provide good results with high accuracy and the method is also easy to apply.

Keyword: Numerical approximation and analysis; Ordinary differential equations