

عنوان مقاله:

Analytical Solving set of Nonlinear Differential Equations in Engineering Fields and Basic Science by Enhanced AGM method

محل انتشار:

هشتمین کنفرانس بین المللی پژوهش در علوم و مهندسی و پنجمین کنگره بین المللی عمران، معماری و شهرسازی آسیا (سال: 1402)

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خلاصه مقاله:

In this literature, set of complicated nonlinear differential equations in the field of engineering have been analyzed and solved completely by algebraic method and we have named it enhanced Akbari-Ganji Method (AGME) As regards the previous published papers, investigating this kind of equations is a very hard task to do and the obtained solution is not accurate and reliable. This issue will be emerged after comparing the achieved solutions by Numerical Method (Num.Rk ۴۵) or the Exact Solution. Based on the comparisons which have been made between the gained solutions by AGM and Numerical Method, it is possible to indicate that AGM can be successfully applied for various differential equations particularly for difficult ones. Furthermore, It is necessary to mention that a summary of the excellence of this method in comparison with the other approaches can be considered as follows: Boundary conditions are needed in accordance with the order of differential equations in the solution procedure but when the number of boundary conditions is less than the order of the differential equation, this approach can create additional new boundary conditions in regard to the own differential equation and its derivatives. Therefore, it is logical to mention that AGM is operational for miscellaneous nonlinear differential equations in comparison with the other methods.

کلمات کلیدی:

Enhanced Akbari- Ganji's Method (AGME), Set of nonlinear differential Equations, Analytical solution, New method, Modeling AGM method

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