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A Study on the Solutions of the 2-Dimensional and Forth-Order Partial Differential Equations

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Abstract : In this study, we will carry out a comparative study between the reduced differential transform method, the adomian decomposition method, the variational iteration method and the homotopy analysis method. These methods are used in many fields of engineering. This is been achieved by handling a kind of 2-Dimensional and forth-order partial differential equations called the Kuramoto–Sivashinsky equations. Three numerical examples have also been carried out to validate and demonstrate efficiency of the four methods. Furthermost, it is shown that the reduced differential transform method has advantage over other methods. This method is very effective and simple and could be applied for nonlinear problems which used in engineering.

Keywords : reduced differential transform method, adomian decomposition method, variational iteration method, homotopy analysis method
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