

# Analytical Method for solving fractional order generalized KdV Equation by beta-fractional derivative

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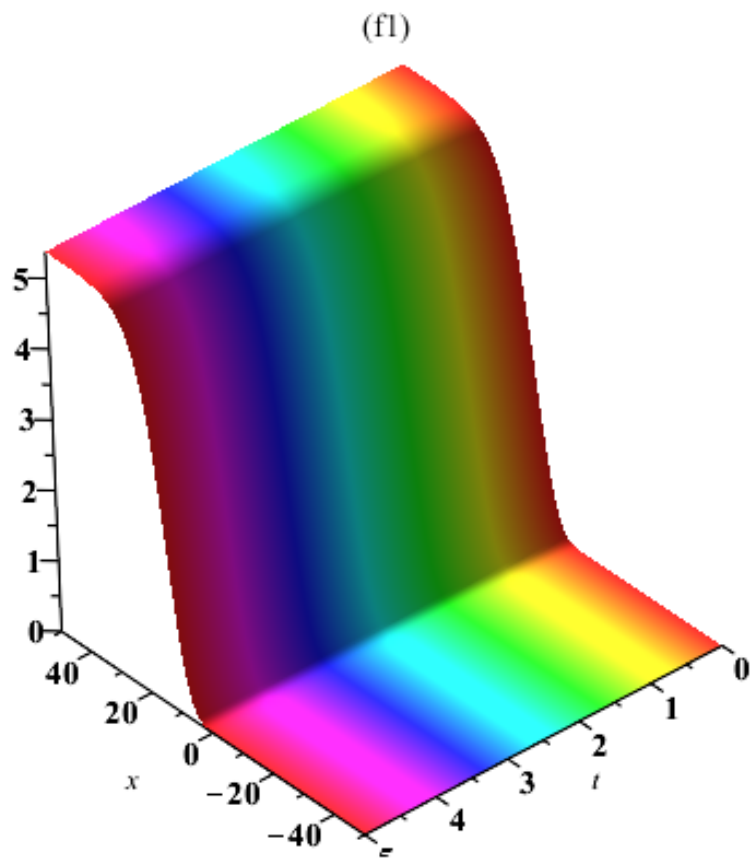
July 17, 2020

## Abstract

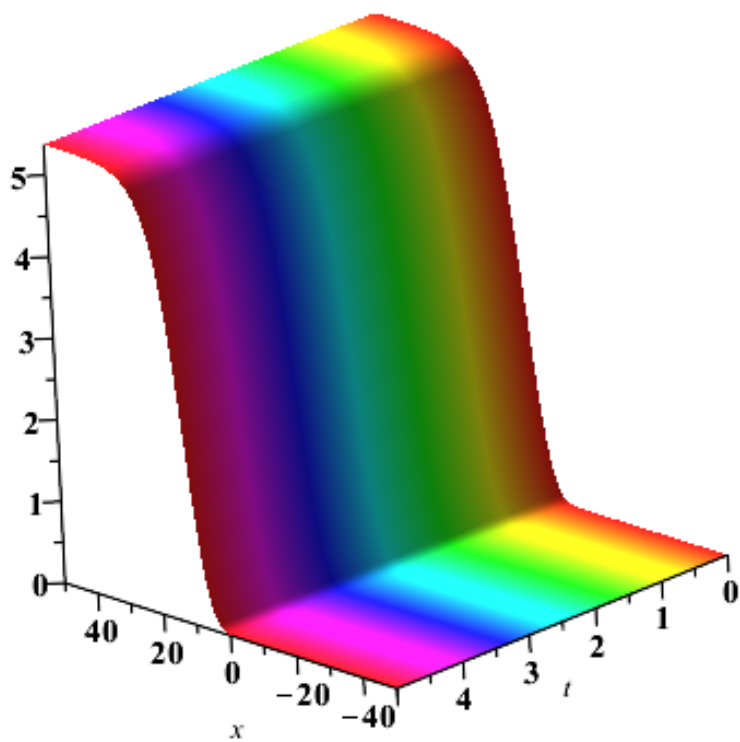
The present work is related to solve the fractional generalized Korteweg-de Vries (gKdV) equation in fractional time derivative form of order  $\alpha$ . Some exact solutions of the fractional-order gKdV equation is attained by employing the new powerful expansion approach by using the beta-fractional derivative which is used to get many solitary wave solutions by changing the various parameters. The obtained solutions include three classes of soliton wave solutions in terms of hyperbolic function, trigonometric function, and rational function solutions. The obtained solutions and the exact solutions are shown graphically, highlighting the effects of non-linearity. Many other such types of nonlinear equations arising in fluid dynamics and nonlinear phenomena.

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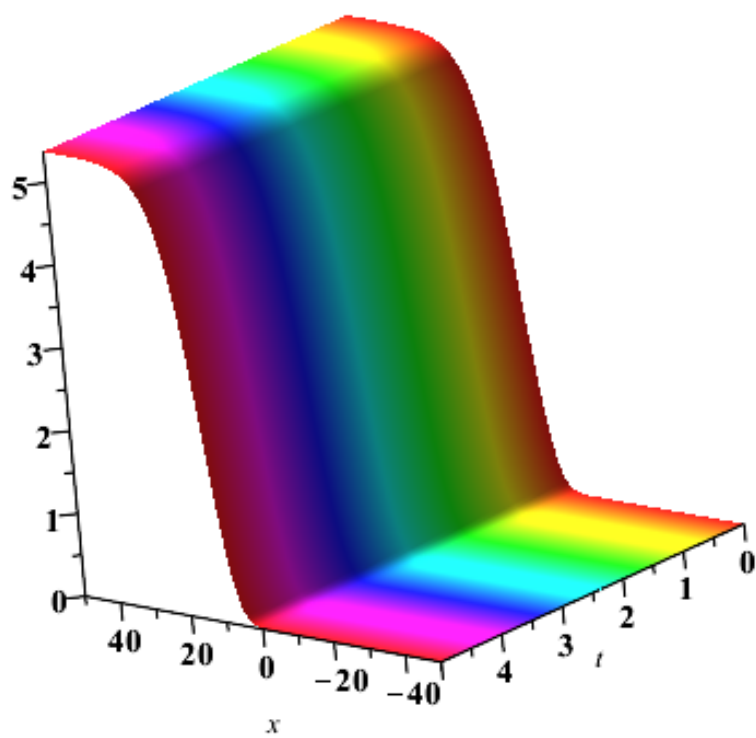
Bagheri-fractional.pdf available at <https://authorea.com/users/343840/articles/470426-analytical-method-for-solving-fractional-order-generalized-kdv-equation-by-beta-fractional-derivative>



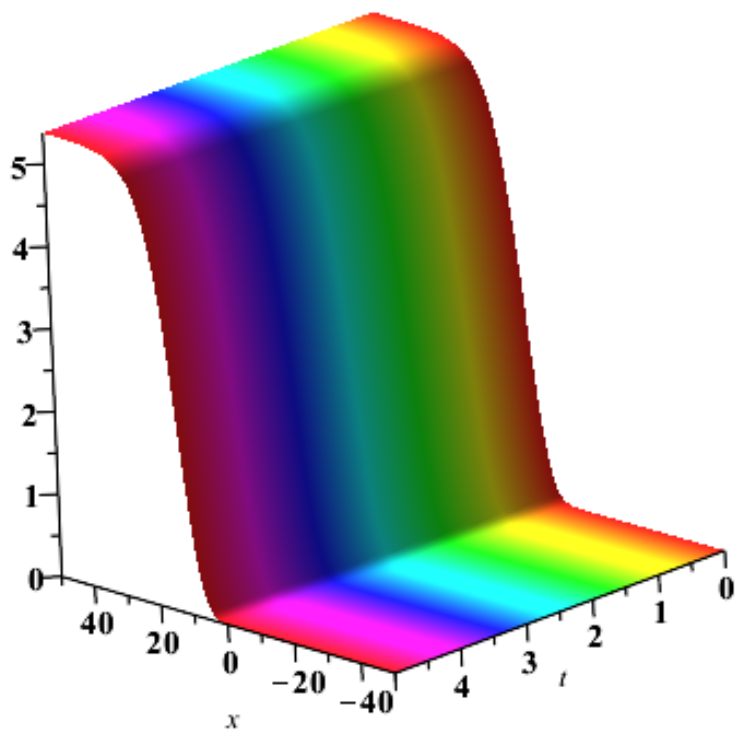
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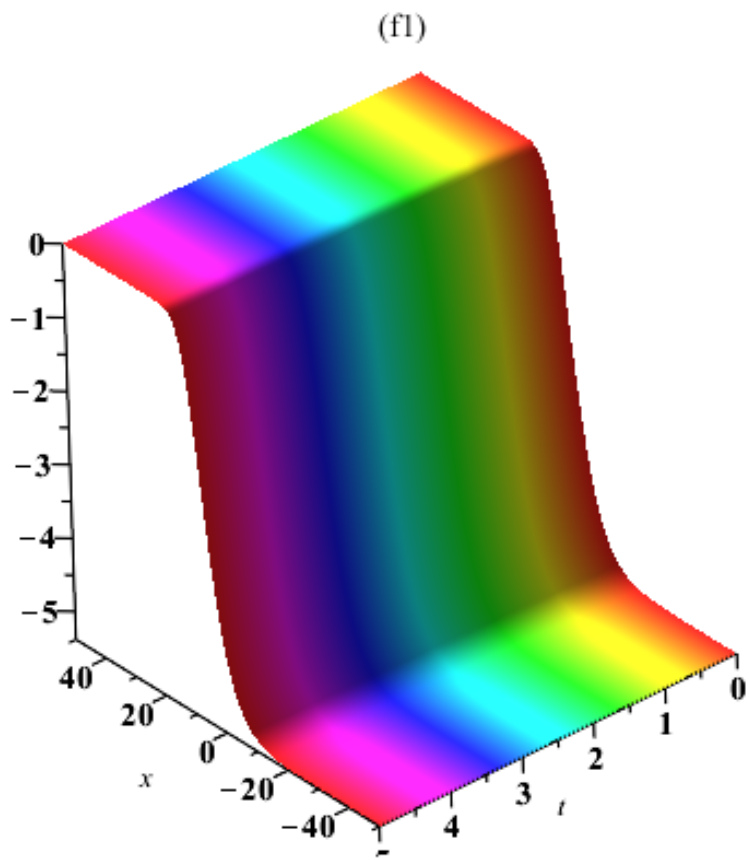


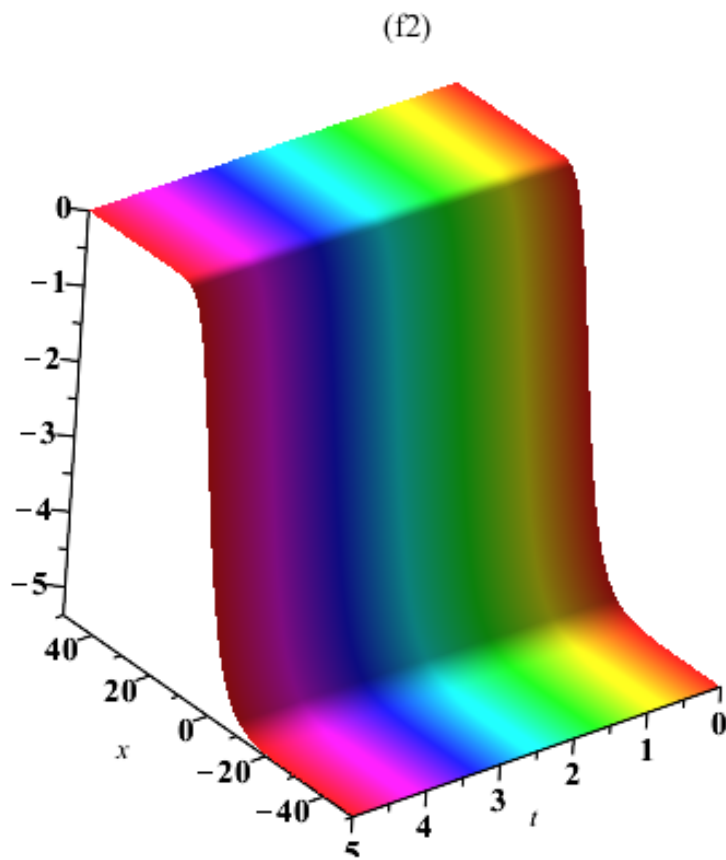
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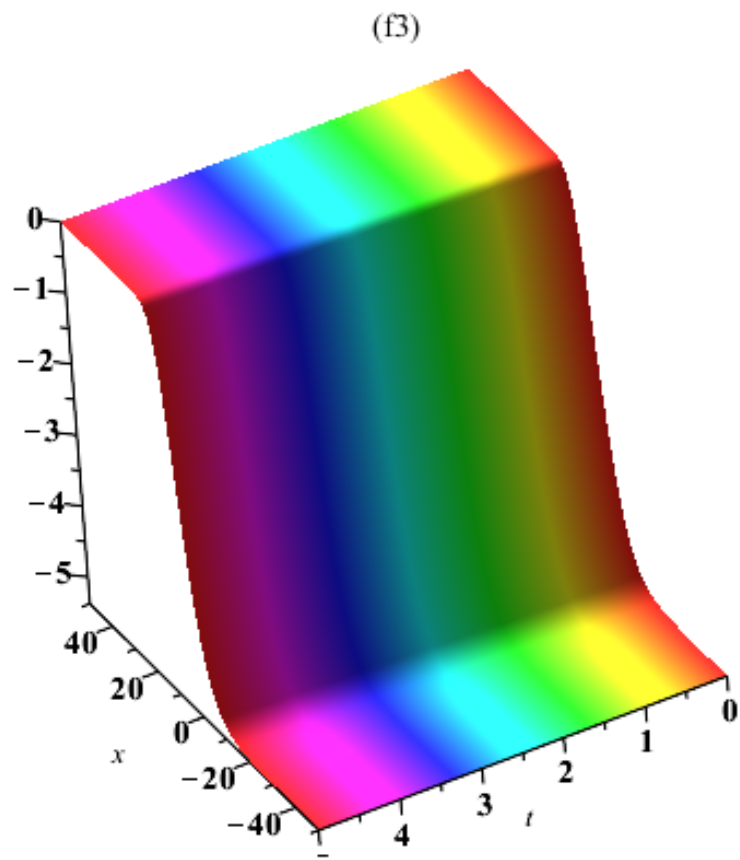


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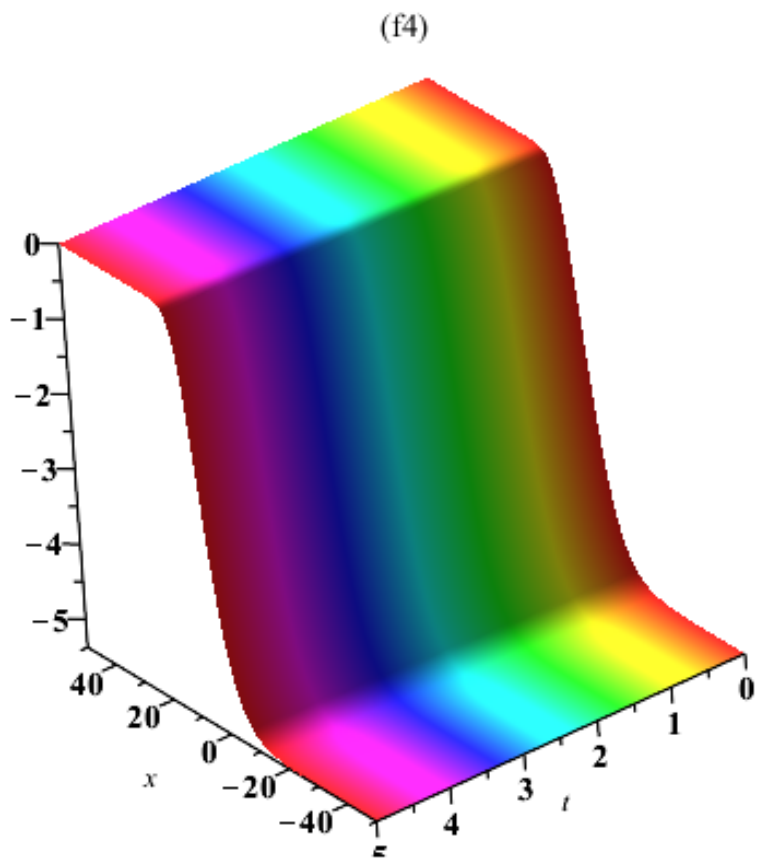


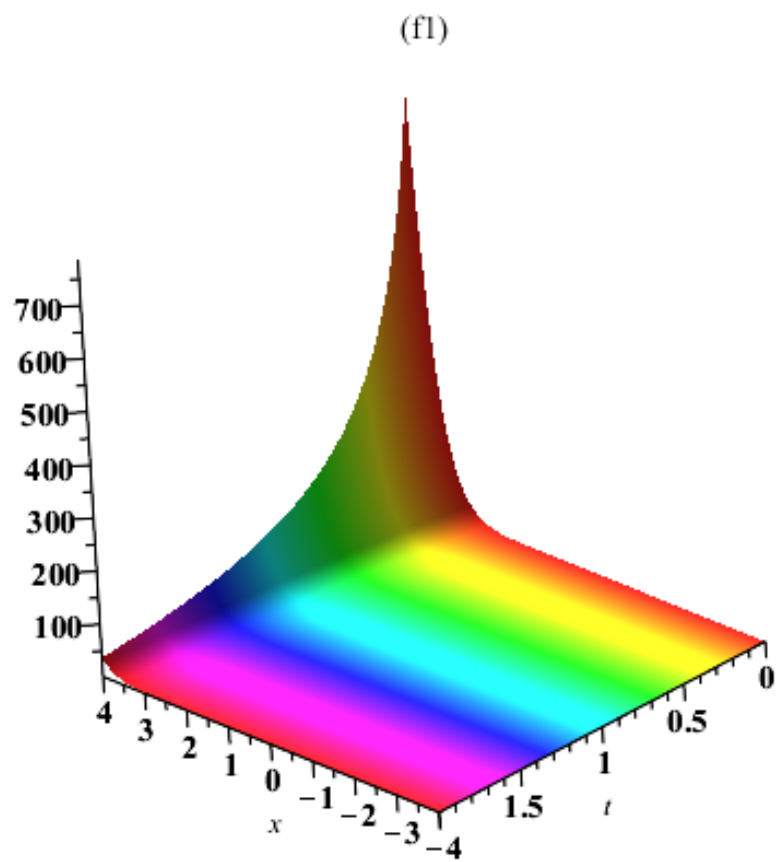


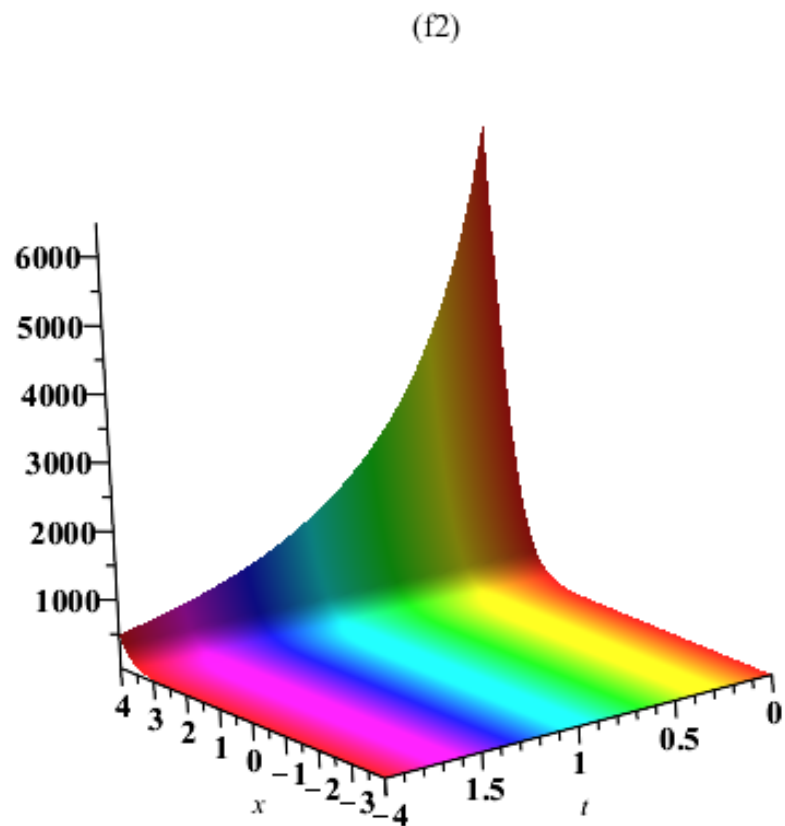


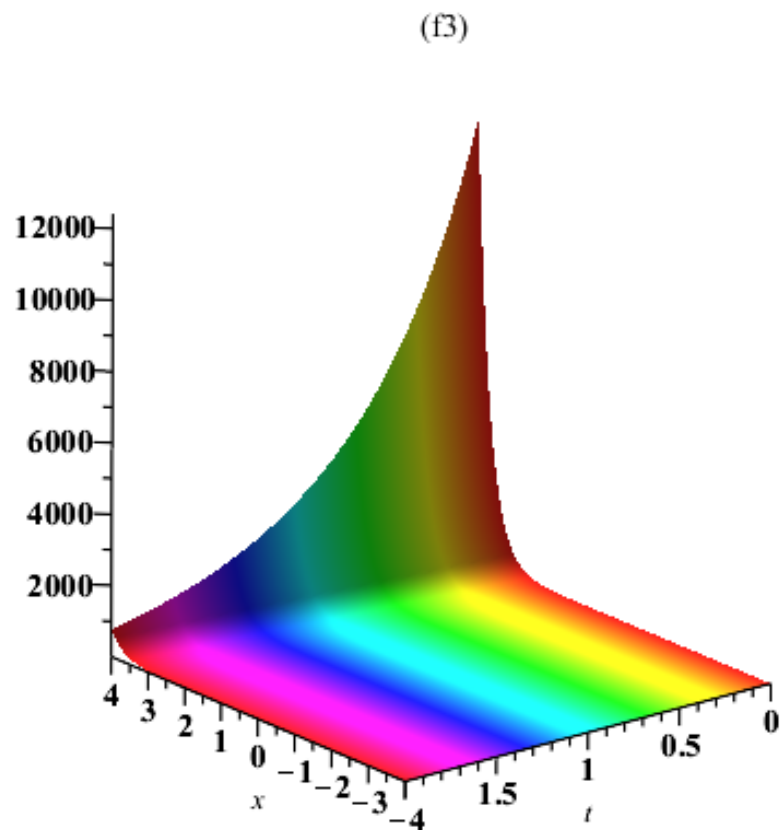


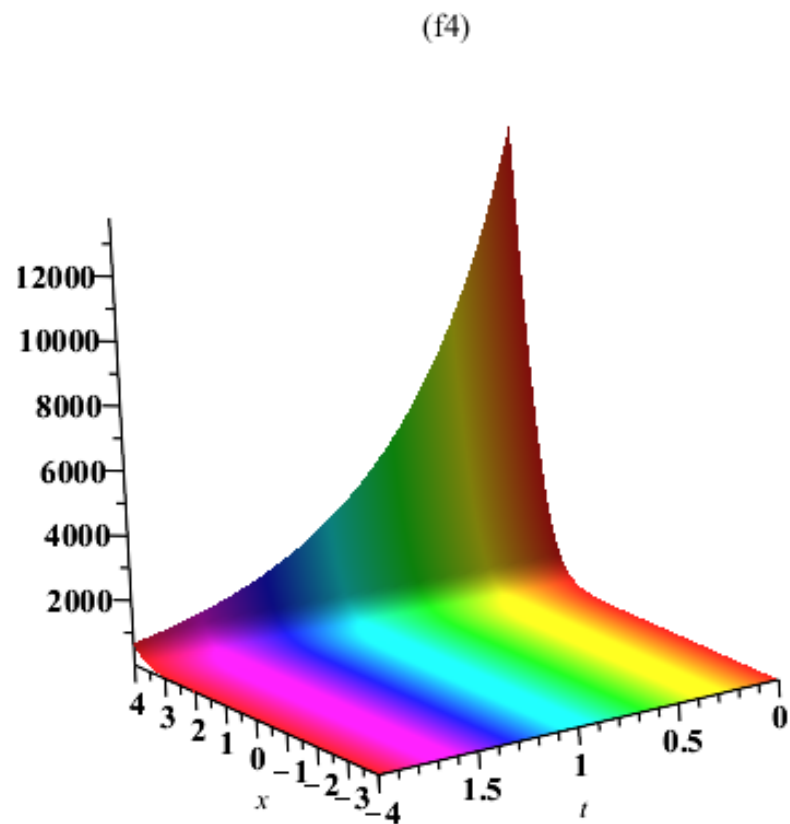




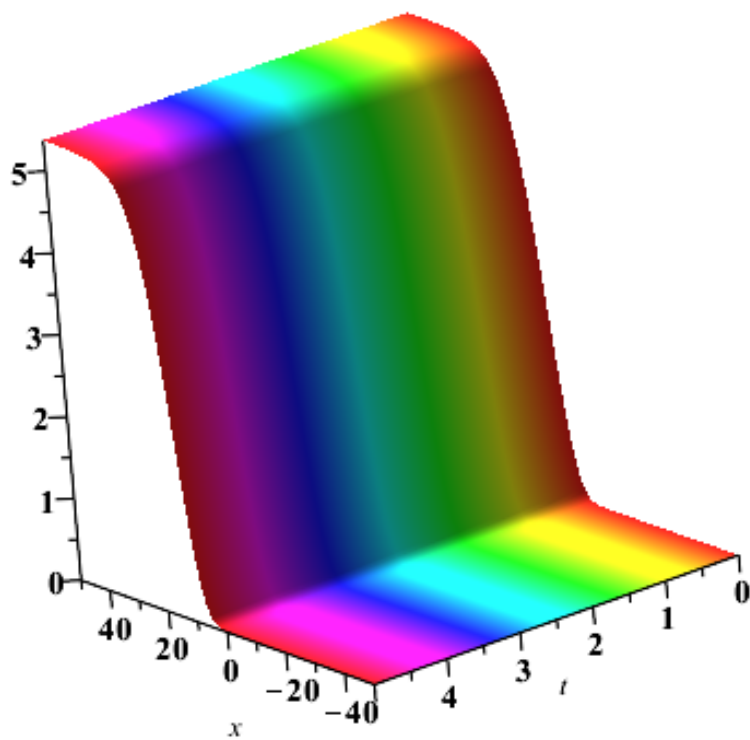




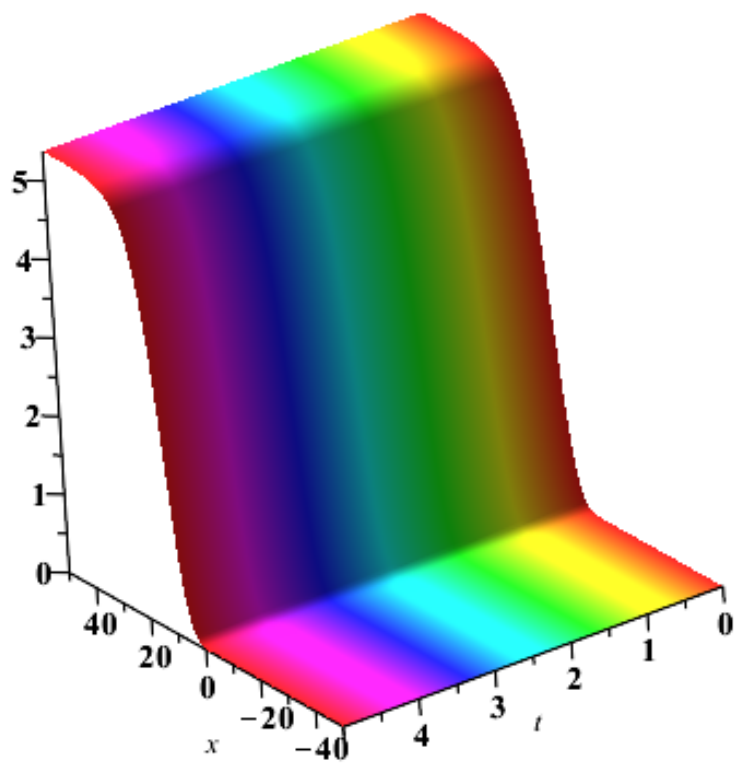




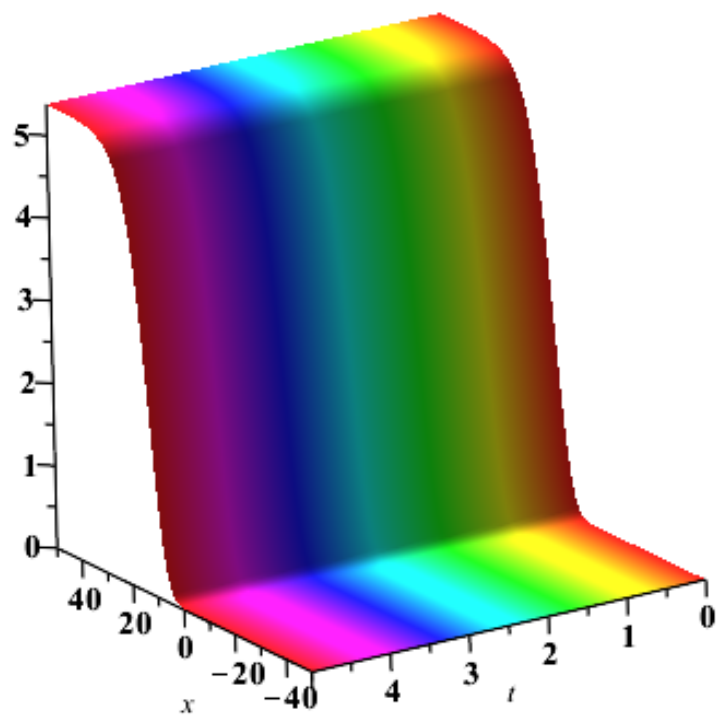
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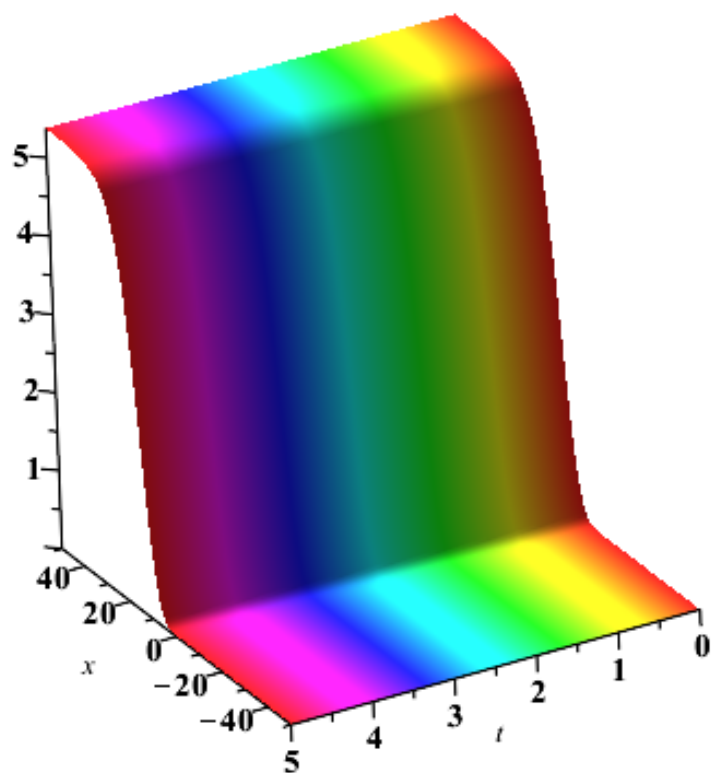


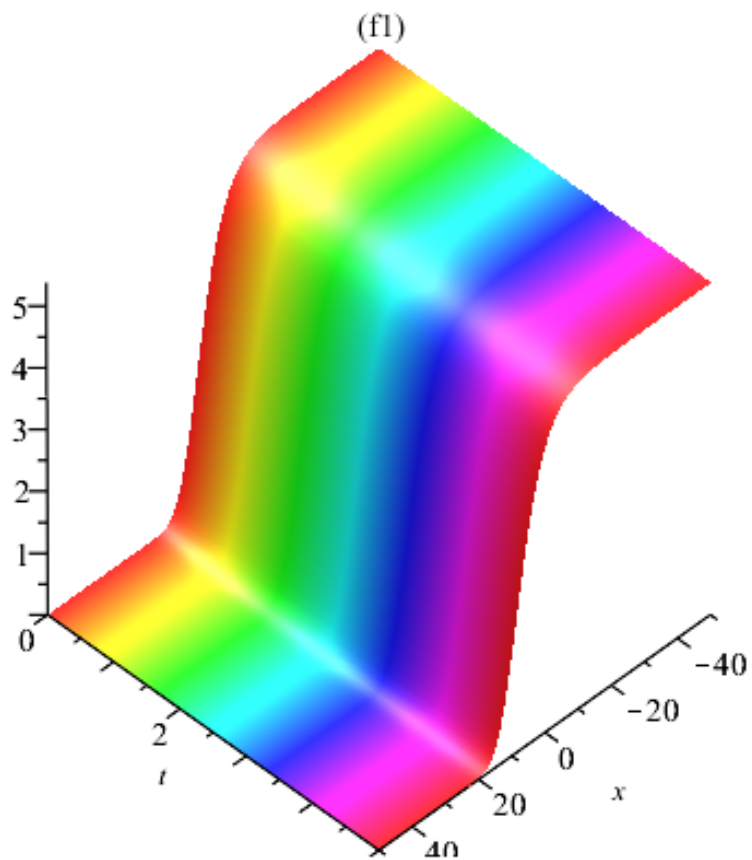
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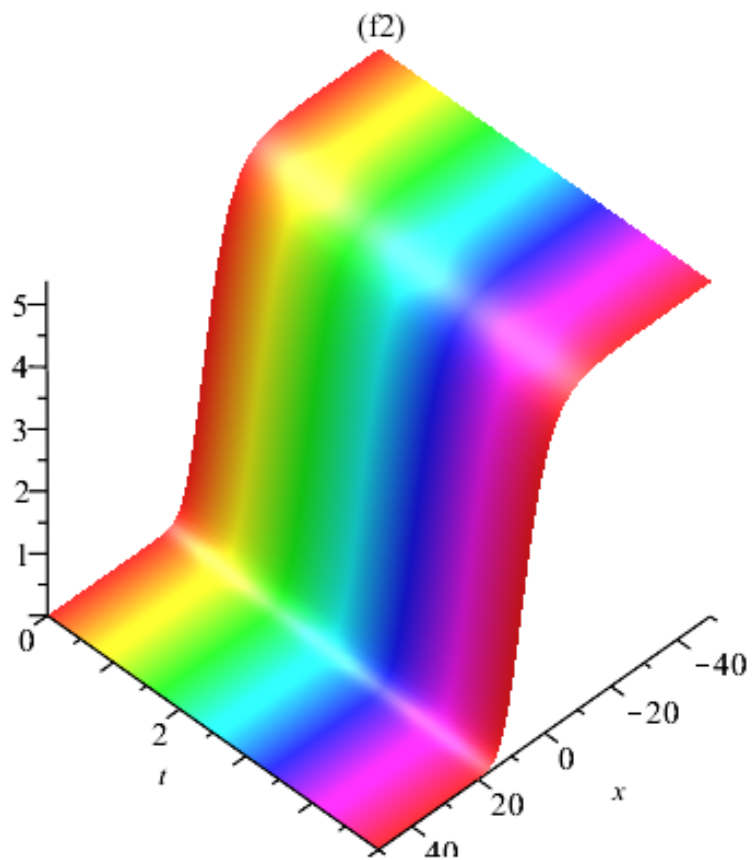


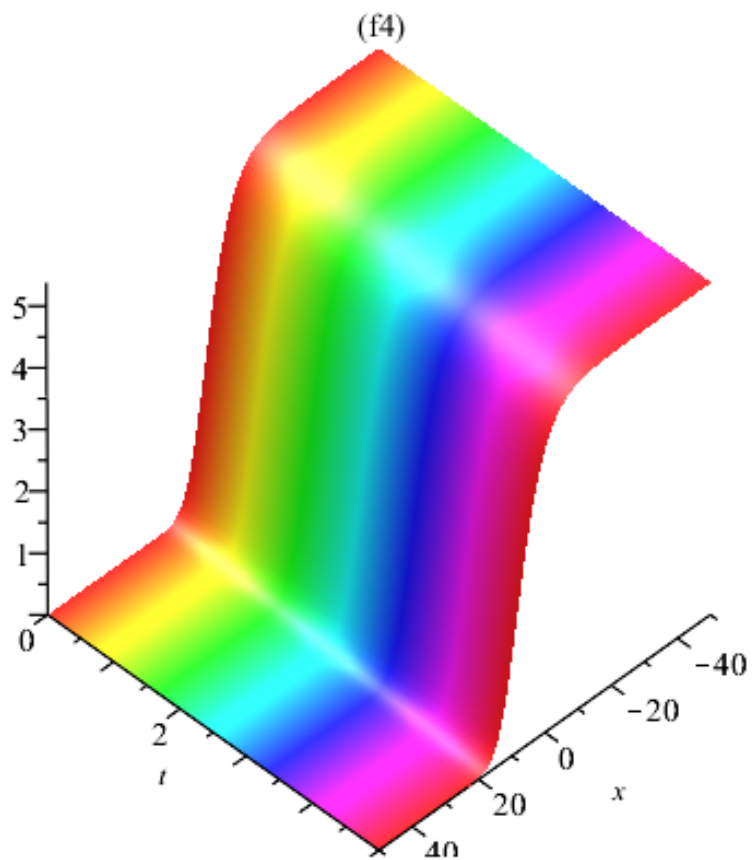


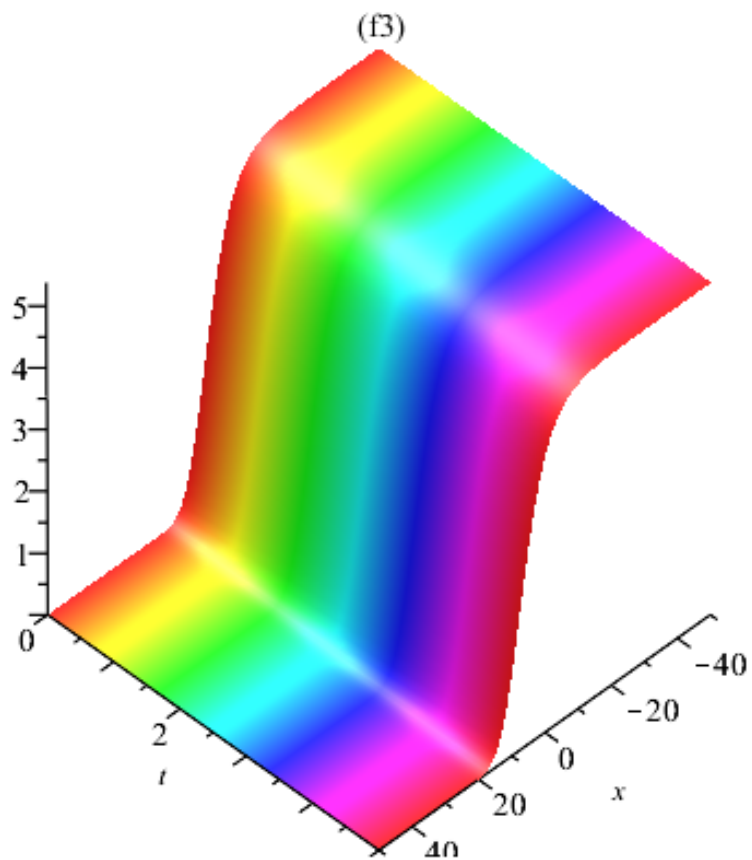
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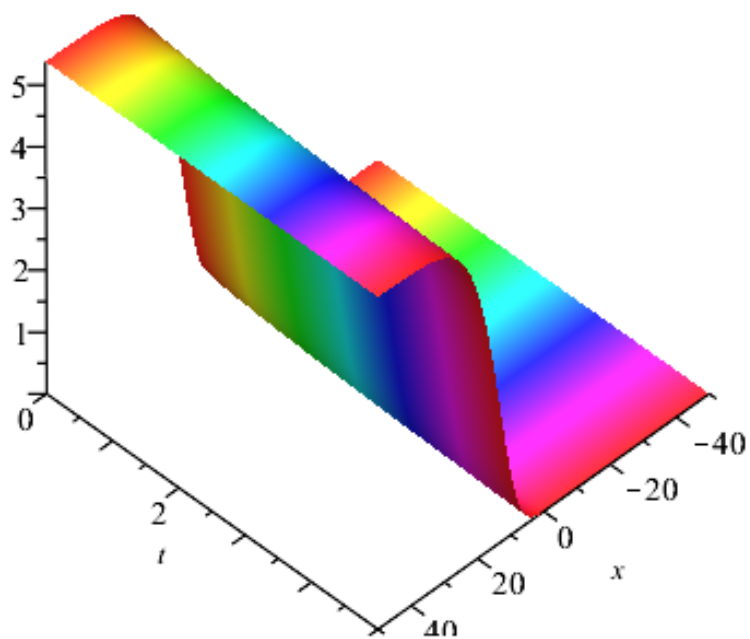




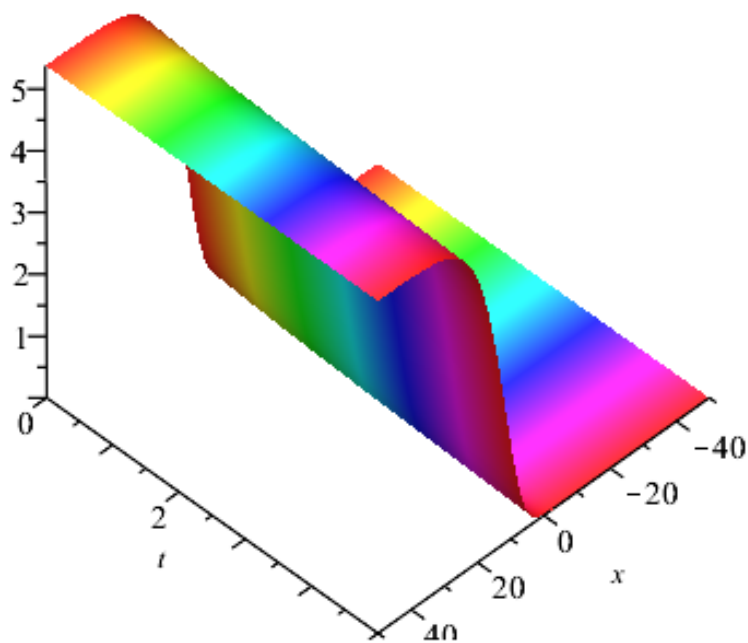




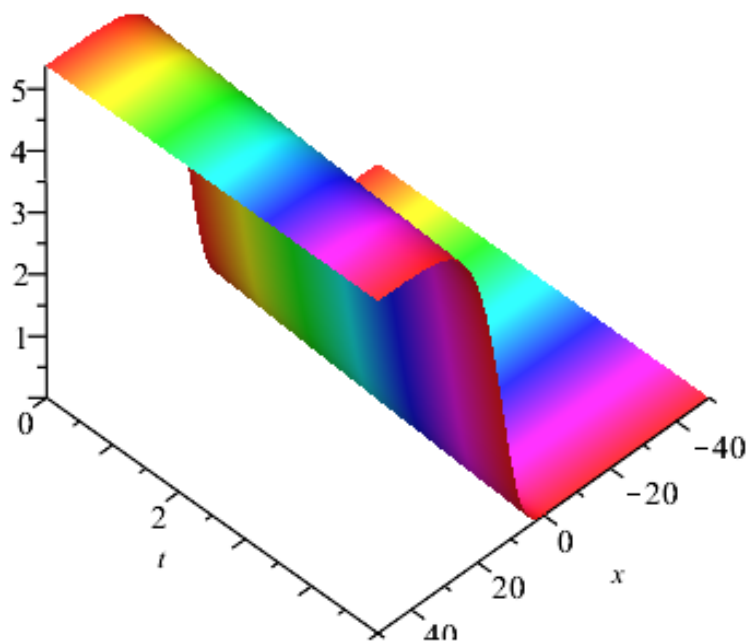
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