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Variational Approach for Computing Solitary-Wave Solutions

We present a variational approach for effectively identifying solitons within a specific mathematical framework. This method involves minimizing a functional to obtain solutions that exhibit solitonic behavior. To validate the approach, we provide numerical results that demonstrate its computational efficiency and effectiveness. Our findings show that this method achieves high accuracy in solving the relevant problems, highlighting its robustness in capturing key features of soliton dynamics. As a result, the approach proves to be both accurate and highly efficient across a range of soliton-related problems.