Title	**Analytical Solutions of Nonlinear Partial Differential Equations Using the (G′/G)-Expansion Method**
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Abstract	This comprehensive research project provides an in-depth exploration of analyt- ical solutions for nonlinear partial differential equations (PDEs) using the powerful (G′/G)-expansion method. The study begins with fundamental concepts of PDEs, including detailed classifications based on order, linearity, and homogeneity. The core of this work presents a thorough theoretical framework of the (G′/G)-expansion method, highlighting its mathematical foundations, historical development, and systematic solution procedure. The method's efficacy and robustness are demonstrated through extensive ap- plications to five significant nonlinear evolution equations: the Korteweg-de Vries (KdV) equation, modified KdV equation, Boussinesq equation, Fisher equation, and Burgers equation. For each equation, complete step-by-step solutions are pro- vided, showcasing the method's ability to generate exact traveling wave solutions. The solutions are systematically expressed in terms of hyperbolic, trigonometric, and rational functions depending on the discriminant of the auxiliary equation. This research contributes significantly to the growing body of knowledge in analytical methods for nonlinear PDEs and provides valuable insights and practical tools for researchers in applied mathematics, physics, engineering, and related fields dealing with nonlinear wave phenomena and complex physical systems.
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