Lie symmetry analysis of the Asian option

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Asian options incorporate the average stock price in the terminal payoff. Examination of the Asian option partial differential equation (PDE) has resulted in many equations of reduced order that can generally be mapped into each other, although this is not always shown. In the literature these reductions and mappings are obtained through the use of transformations that are typically acquired via inspection or *ad hoc* methods. We use Lie point symmetries with Lie's systematic and algorithmic methods to show that one can obtain the same aforementioned reductions and mappings.