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Geometric meaning and variation of parameter method of modified a-fractional derivative

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Abstract

In this study, we address a frequently asked topic by scholars, "What is the geometrical meaning of the modified a-derivative", by using the notion of fractional cords. There is also discussion of fractional orthogonal trajectories. We give several examples to explain the notions of fractional cords and fractional orthogonal trajectories. Moreover, we also discuss the variation of the parameter method and we examine how to apply this technique to discover a particular solution to a set of nonhomogeneous linear fractional differential equations. A formula for modified a-fractional differential equations is established, which is identical to that for ordinary differential equations.