

Solving Systems of Differential Equations by Algebrizability of Vector Fields in the Plane.

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Abstract

In this paper, a new method is presented to find the solution of systems of autonomous ordinary differential equations in the plane. This method consist to consider the vector field f associated to system of autonomous ordinary differential equations given and determine if f is algebrizable. If so, then is possible to find an algebra A , in which the system of equations differential can be rewritten in terms of a new variable in the algebra. Given the above, it continues to find its solution in the algebra and then find the solution the given system. Is characterized the type of quadratic systems in the plane which are algebrizable with the implementation of functions in the GNU-R, which permit determine if f is algebrizable. Simulations are programmed and solutions are made of the given system and the corresponding equation in algebra.

References

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