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# Dynamical study of the Secant method

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In this work we present a first study on the dynamical behavior of the Secant method in order to approximate a solution of a nonlinear equation. Using the tool developed in [1] and the adaptation of the complex dynamics tool it is easy to study that behavior of that method when it is applied to different functions. The main idea of the study is to consider both axis as the possible values of the two starting points $x_{-1}$ and $x_0$ and we colour the distinct behaviors, such us convergence to the roots, divergence to infinity, convergence to cycles, etc. in different colors.

## References

[1] Á. A. Magreñán, A new tool to study real dynamics: The convergence plane Appl. Math. Comput, 248 (2014), 215–224.

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