Approximations of Zeros in Differentiable Functions

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The method exposes an approximation of the zeros of any differentiable function. The functions in which the method is fulfilled are the logarithmic, exponential, algebraic, and trigonometric functions. The procedure for obtaining the zeros in polynomials are: establish intervals using the critical points, to check if there a change of sign, use 3 coordinates where at least two coordinates occur a change of sign, then perform I(x). The formulas are (n>=mayor zero), n<=minus zero, n<=x<=n1, zero under the domain. The procedure of interpolation 2.0 for any differentiable function including the polynomials is: establish intervals using the critical points, check if there is a zero in the interval, use 2 coordinates in wich the change of X in the linear slope is positive or negative 0.1, perform I(x), and zero of the linear function is the approximation. As a result, the steps are a more efficient algorithm, it is useful for imaginary functions, it provides the exact amount of real and imaginary zeros of the function, it has a finite procedure, it does not need previous approximations, less complexity and more practical than the main methods: Newton's Method, Bisection Method, False Position and Fixed-Point. Another advantage of the method is that it finds the value of the zeros of any function related to X. The areas of implementation of the algorithm I(x) are in Precalculus, Physics, Calculus, Algebra, Statistics, Chemistry, Astronomy and Number Theory.

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