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Lab 1

Data Analysis

Jan 17, 2019

      In this lab I became familiar with Maple and created a c++ program for Horner's algorithm. The Maple commands I became familiar with are for Taylor series and the evaluation of functions. The program was created via given specs and tested on three different polynomials at three different points.

Function	$x_1 = 0$	$x_2 = 5$	$x_3 = 10$
$f(x) = 3x^3 - 4x^2 + 0x + 10$	10	285	2610
$f(x) = 3x^5 - 5x^4 + 1x^3 - 4x^2 + 6x + 3$	3	6308	250663
$f(x) = 3x^3 - 4x^2 + 8x + 2$	2	317	2682

Horner's method for evaluating polynomials is about as efficient as the direct method for low power series but becomes more efficient as the degree of the polynomial grows. It is obviously much more efficient in high degree polynomials.