

Numerical Analysis Maple Project 4

Due November 25, 2002

Instructions: Use a word processor to create a single text file with Maple procedures implementing all algorithms required for the exercises below. Each procedure must use type checking and return a value using the **return** statement. Read the file into Maple and test each procedure. Turn in the following:

- 1). A hard copy showing only your reading in the text file and testing the procedures.
- 2). An email message with your text file attached so that I can test your procedures.
- 3). A hard copy of your text file.

1. Suppose that Neville's method will be used to evaluate an interpolating polynomial given $n + 1$ distinct points

$$(x_0, f(x_0)), (x_1, f(x_1)), (x_2, f(x_2)), \dots, (x_n, f(x_n)).$$

Find a formula $A(n)$ to count the total number of additions and subtractions required and a formula $M(n)$ to count the total number of multiplications and divisions required.

2. Implement the algorithm in Section 3.1 for Neville's method. Use it to complete Exercise 4a of Section 3.1.

Note: I expect you to work alone on this assignment. If you need help, please talk to <i>me</i> .
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