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Math-5630/6630
Introduction to Numerical Analysis I
Summer 2007
Homework 8

Problems

1. Do problems 7 and 8 on p. 422 of your textbook.

Programs

1. Program the Midpoint rule, Trapezoidal rule, and Simpson's rule and apply, with $n = 2^m$ subintervals, for $m = 0, 1, \dots, 6$, to

$$\int_3^5 \frac{1}{\sqrt{x^2 - 4}} dx$$

and

$$\int_0^4 x^{3/2} dx.$$

Compute the exact integrals and absolute errors and display the results in a table.

- 2.* Program the Romberg integration algorithm and apply to the integrals above with $m = 6$ (that is, compute $\mathcal{A}_{6,6}$).

* Math 6630.