

## Part Three:

# Calculus

The operations of differentiation and integration take functions on input and return functions or numbers. In this part we will explore Maple's capabilities of defining functions which manipulate and return functions.

The titles of the six lectures are

15. Defining Mathematical Functions
16. Maple Procedures and Recursion
17. Working with Functions
18. Symbolic and Automatic Differentiation
19. Integration and Summation
20. Series, Approximations, and Limits

While we see how to make recursive procedures efficient in Maple, this part is not really about programming (at least not at the same low level as programming in C for instance), but more about the using the high level mathematical aspects of functions.

Notice that in this part we will not touch the Maple package "student" which implements the typical operations a student in a calculus course encounters. In this "Calculus" part we consider the more basic operations of calculus.