Programming Techniques for Scientific Simulations
Exercise 2

HS 10
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Problem 2.1   Function pointers and libraries

1. Write a C++ function for the Simpson integration which takes the function to integrate as an argument. What are the arguments of your function? What are the preconditions and the postconditions? Document your function thoroughly and check the conditions using assertions.

2. Take that function and copy it to a different file. Create a header file that declares the function. Compile and link your program.

3. Create a Makefile that compiles the function for you. Make sure you get the dependencies right. Always compile only the files that have changed.

4. Create a library libintegrate.a that contains your Simpson integration function. Rewrite your Makefile to link against it.