Lab3 - Numerical integration

The performances of computing numerical integration can drastically vary depending on the implementation of the function. Using multithreading can or can not impact the execution time of a program depending on the way the program is implemented and also the way the multithreading processes are implemented through the algorithm.

For example in this program, the results of using multithreading have no interest at all. The gain in the execution time is minim compare to a normal execution. However, the goal is reach in both implementations. The result of both programm is the same, only the execution time vary.

Average execution time for 1000 executions of the numerical integrations with a precision of 1000000 :

$f(x) =$	$\int_0^{50} 2x^2 = 83333$	$\int_0^{50} x + tan(sin(x^2)) = 1250$
Thread	42.322s	114.974s
No thread	42.858s	115.089s

This table show that there is no real improvement in the execution time if we use thread or not. This show that in this programm, there is probably a bad implementation of the multithreading process or that the tests done are not complex enough to prove that one solution is better than the other. Even if the goal of the result of the equation is reach, this program could be improved through a better implementation.