

## Preparation guide for Quiz 05

As usual, you need to go over your homework problems first. When you are done, check if you have reached the following:

1. Memorize Trapezoidal Rule, Midpoint Rule and Simpson's Rule, together with their composite version.

Be able to implement them from scratch.

2. Know how to derive the error formula for Trapezoidal rule and midpoint rule, both in the form obtained from 'Generalized Mean Value Theorem' and in the form of a Riemann sum of another integral.

Know how to use these error formula to decide  $n$  or  $h$  so that the error of numerical integration is within a given tolerance.

3. Know the meaning of 'degree of precision' and how to compute them.
4. The general Newton-Cotes formula are rarely used in reality, except the three special cases mentioned above. You can skip the rest of them.
5. There are some mistakes in the answers provided by the authors. Check you email for the corrections.