

Rem.: (i) Adaptive quadrature can be often very efficient, but not always.

There is no guarantee that the error is smaller than the chosen tolerance tol.

(ii) Choices for methods 1/2

Same method, but with half-subint.

$$Q_{\uparrow}[f] = Q_n^{\uparrow}[f]$$

$$Q_{\downarrow}[f] = Q_n^{\downarrow}[f]$$

Or method with higher order

$$Q_{\uparrow}[f] = Q_s^{\uparrow}[f]$$

$$Q_{\downarrow}[f] = Q_{s+1}^{\downarrow}[f]$$

E.g.:  $s=1$  (trapezoidal)

$s=1+1=2$  Simpson