

# Chapter 7 - Numerical Integration - Spring 2021 - Part 2

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1. Single segment trapezoidal rule integration true error is given by

$$E_t = -(b-a)^3/12 * f''(c).$$

The point  $c$  is

- ☐  $(a + b)/2$
- ☐ *between  $a$  and  $b$ , both included*
- ☐ *same as  $a$*
- ☐ *same as  $b$*

2. To estimate an integral of a function, a student is using a multiple-segment trapezoidal rule with 32 segments. The student then uses 16 segments for the same estimation. The true error in the 16 segment-rule estimate would be \_\_\_\_\_ of the true error for the 32-segment rule estimate.

- ☐ exactly quarter
- ☐ approximately quarter
- ☐ approximated quadruple
- ☐ exactly quadruple
- ☐ exactly double
- ☐ approximately double

- ☐ exactly half
- ☐ approximately half

3. The trapezoidal rule can be written as (Check all that apply)

- ☐  $\frac{b-a}{2} (f(a) + f(b))$
- ☐  $(b-a)f(a)$
- ☐  $\frac{b-a}{2}f(a) + \frac{b-a}{2}f(b)$
- ☐  $(b-a) \frac{f(a)+f(b)}{2}$

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