

Vu Buddy- MTH603

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1. Richardson extrapolation method is used to improve the rate of convergence of a
- Series
 - Sequence
2. Which of the following is the Global Error for Simpson's 3/8 Rule while integrating ' $f(x) = \cos x$ ' in the interval of $[0, \pi]$ of equally spaced subintervals of width ' $h = \pi/6$ ' and intermediate point $x = \pi/2$?
- $\pi/80$
 - 1
 - $-\pi/80$
 - 0
3. 1st ordered divided difference formula is defined as
- None of the given choices
 - $y[x_0, x_1] = (y_1 - y_0)/(x_1 - x_0)$
 - $y[x_0, x_1] = (y_1 - y_0)/(x_1 + x_0)$
 - $y[x_0, x_1] = (y_1 + y_0)/(x_1 - x_0)$
4. [math-block] The first, divide, difference, $y[\{x_0\}, \{x_1\}]$, can, be, given, as, [/math-block]
- [math-block] $\frac{\{y_1\} - \{y_0\}}{\{x_1\} - \{x_0\}}$ [/math-block]
 - All
 - [math-block] $\frac{\Delta \{y_0\}}{h}$ [/math-block]
 - [math-block] $\frac{\nabla \{y_1\}}{h}$ [/math-block]

5. If the area under ' $f(x) = x$ ' in interval $[0,2]$ is subdivided into two equal sub-intervals of width '1' with left end points, then which of the following will be the Truncation Error provided that $I(\text{definite integral}) = 2$ and approximate sum = 3 ?
- a. 0
 - b. -1
 - c. 1
 - d. 3
6. In Simpson's 1/3 rule, we divide the interval of integration $[a, b]$ into an number of sub-intervals.
- a. Even
 - b. Odd
 - c. None of the given choices
 - d. Prime
7. To evaluate a definite integral of tabular function $f(x)$, piecewise linear approximation led to -----.
- a. Simpson's 3/8 Rule
 - b. Simpson's 1/3 Rule
 - c. Trapezoidal Method
 - d. Romberg's Method
8. In Simpson's 3/8 rule, the global error is of
- a. $O(h^2)$
 - b. $O(h^3)$
 - c. $O(h^4)$
 - d. None of the given choices

9. Integration is aprocess.

- a. Subtracting
- b. Dividing
- c. Summing
- d. None of the given choices

10. In Romberg's method, accuracy of Simpson and Trapezoidal rules is improved by -----.

- a. interpolation
- b. extrapolation

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