

Unit 13 - Week 11

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Assignment 11

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-12-02, 23:59 IST.

1) Use the closed Newton-Cotes formula to approximate the integral $\int_0^{\frac{\pi}{4}} \sin x dx$ with $n = 4$ 1 point

- 0.59
- 0.78
- 0.92
- None of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
None of these

2) Use the open Newton-Cotes formula to approximate the integral $\int_0^{\frac{\pi}{3}} \sin x dx$ with $n = 3$ 1 point

- 0.39
- 0.19
- 0.51
- None of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
None of these

3) The Trapezoidal rule applied to $\int_0^1 f(x) dx$ gives the value 4 with $n = 1$, and Simpson's one third rule gives the value 2 with $n = 2$. Find the value of $f(0.5)$ 1 point

- 0.5
- 1.0
- 0.75
- None of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.0

4) Use the Simpson's one third rule to approximate the integral $\int_3^5 \frac{1}{\sqrt{x^2-4}} dx$ with $n = 8$ 1 point

- 0.75
- 0.35
- 0.60
- 0.85

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.60

5) Use the Trapezoidal rule to approximate the integral $\int_0^2 \frac{2}{x^2+4} dx$ with $n = 6$ 1 point

- 0.78
- 0.45
- 0.52
- 0.64

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.78

6) The velocity of a body is given by 1 point

$$v(t) = \begin{cases} 2t & 1 \leq t \leq 5 \\ 5t^2 + 3 & 5 < t \leq 14, \end{cases}$$

where t is given in seconds and v is given in m/s . Using two-segment Simpson's one third rule, the distance in meters covered by the body from $t = 2$ to $t = 9$ seconds most nearly is

- 949.33
- 1039.7
- 1200.5
- 1442.0

No, the answer is incorrect.
Score: 0
Accepted Answers:
1200.5

7) The following data of the velocity of a body is given as a function of time 1 point

Time(s)	4	7	10	15
Velocity(m/s)	22	24	37	46

The best estimate of the distance in meters covered by the body from $t = 4$ to $t = 15$ using combined Simpson's one third rule and the Trapezoidal rule would be

- 354.70
- 362.50
- 368.00
- 378.00

No, the answer is incorrect.
Score: 0
Accepted Answers:
362.50

8) Consider the following table 1 point

x	2	3	4
$f(x)$	22	24	37

If f is symmetrical about the line $x = 2$, then compute $\int_0^4 f(x) dx$ using Trapezoidal rule with $h = 1$.

- 107
- 95
- 85
- None of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
107

For Q9-10: Determine the value of n required to approximate $\int_0^2 \frac{1}{x+4} dx$ to within 10^{-5} 1 point

9) Using Trapezoidal rule 1 point

- 35
- 40
- 46
- 30

No, the answer is incorrect.
Score: 0
Accepted Answers:
46

10) Using Simpson's one third rule 1 point

- 6
- 5
- 4
- 3

No, the answer is incorrect.
Score: 0
Accepted Answers:
6