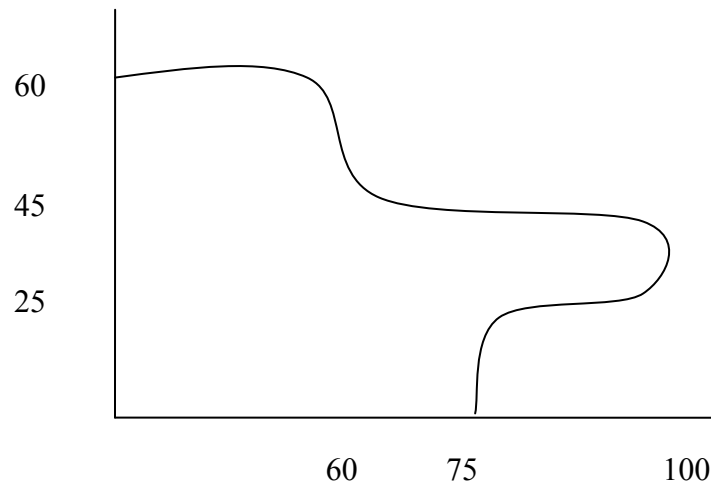


Multiple Choice Test

Trapezoidal Rule

1. The two-segment trapezoidal rule of integration is exact for integrating at most _____ order polynomials.
(A) first
(B) second
(C) third
(D) fourth
2. The value of $\int_{0.2}^{2.2} xe^x dx$ by using the one-segment trapezoidal rule is most nearly
(A) 11.672
(B) 11.807
(C) 20.099
(D) 24.119
3. The value of $\int_{0.2}^{2.2} xe^x dx$ by using the three-segment trapezoidal rule is most nearly
(A) 11.672
(B) 11.807
(C) 12.811
(D) 14.633
4. The velocity of a body is given by
$$v(t) = 2t, \quad 1 \leq t \leq 5$$
$$= 5t^2 + 3, \quad 5 < t \leq 14$$
where t is given in seconds, and v is given in m/s. Use the two-segment trapezoidal rule to find the distance in meters covered by the body from $t = 2$ to $t = 9$ seconds.
(A) 935.00
(B) 1039.7
(C) 1260.9
(D) 5048.9

5. The shaded area shows a plot of land available for sale. The units of measurement are in meters. Your best estimate of the area of the land in m^2 is most nearly
- (A) 2500
 (B) 4775
 (C) 5250
 (D) 6000



6. The following data of the velocity of a body is given as a function of time.

Time (s)	0	15	18	22	24
Velocity (m/s)	22	24	37	25	123

The distance in meters covered by the body from $t = 12 \text{ s}$ to $t = 18 \text{ s}$ calculated using the trapezoidal rule with unequal segments is

- (A) 162.90
 (B) 166.00
 (C) 181.70
 (D) 436.50

Multiple-Choice Test

Simpson's 1/3 Rule

1. The highest order of polynomial integrand for which Simpson's 1/3 rule of integration is exact is
 - (A) first
 - (B) second
 - (C) third
 - (D) fourth
2. The value of $\int_{0.2}^{2.2} e^x dx$ by using 2-segment Simpson's 1/3 rule most nearly is
 - (A) 7.8036
 - (B) 7.8423
 - (C) 8.4433
 - (D) 10.246
3. The value of $\int_{0.2}^{2.2} e^x dx$ by using 4-segment Simpson's 1/3 rule most nearly is
 - (A) 7.8036
 - (B) 7.8062
 - (C) 7.8423
 - (D) 7.9655
4. The velocity of a body is given by
$$v(t) = 2t, \quad 1 \leq t \leq 5$$
$$= 5t^2 + 3, \quad 5 < t \leq 14$$
where t is given in seconds, and v is given in m/s. Using two-segment Simpson's 1/3 rule, the distance in meters covered by the body from $t = 2$ to $t = 9$ seconds most nearly is
 - (A) 949.33
 - (B) 1039.7
 - (C) 1200.5
 - (D) 1442.0

5. The value of $\int_3^{19} f(x)dx$ by using 2-segment Simpson's 1/3 rule is estimated as 702.039. The estimate of the same integral using 4-segment Simpson's 1/3 rule most nearly is

- (A) $702.039 + \frac{8}{3}[2f(7) - f(11) + 2f(15)]$
(B) $\frac{702.039}{2} + \frac{8}{3}[2f(7) - f(11) + 2f(15)]$
(C) $702.039 + \frac{8}{3}[2f(7) + 2f(15)]$
(D) $\frac{702.039}{2} + \frac{8}{3}[2f(7) + 2f(15)]$

6. The following data of the velocity of a body is given as a function of time.

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 1/3 rule and the trapezoidal rule would be

- (A) 354.70
(B) 362.50
(C) 368.00
(D) 378.80