Riemann Sums

93 36. If the definite integral $\int_0^2 e^{x^2}\,dx$ is first approximated by using two <u>inscribed</u> rectangles of equal width and then approximated by using the trapezoidal rule with $n = 2$, the difference between the two approximations is

(A) 53.60 (B) 30.51 (C) 27.80 (D) 26.80 (E) 12.78

x	2	5	7	8
$f(x)$	10	30	40	20

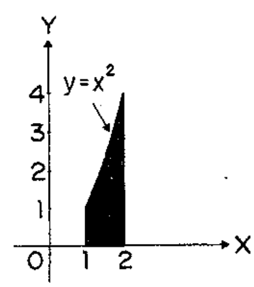
98 85. The function f is continuous on the closed interval $[2,8]$ and has values that are given in the table above. Using the subintervals $[2,5]$, $[5,7]$, and $[7,8]$, what is the trapezoidal approximation of $\int_2^8 f(x)\,dx$?

(A) 110 (B) 130 (C) 160 (D) 190 (E) 210

x	0	0.5	1.0	1.5	2.0
$f(x)$	3	3	5	8	13

97 89. A table of values for a continuous function f is shown above. If four equal subintervals of $[0,2]$ are used, which of the following is the trapezoidal approximation of $\int_0^2 f(x)\,dx$?

~~(A) 8 (B) 12 (C) 16 (D) 24 (E) 32~~



73 42. Calculate the approximate area of the shaded region in the figure by the trapezoidal rule, using divisions at $x = \frac{4}{3}$ and $x = \frac{5}{3}$.

(A) $\frac{50}{27}$ (B) $\frac{251}{108}$ (C) $\frac{7}{3}$ (D) $\frac{127}{54}$ (E) $\frac{77}{27}$

96 96

88 18. If three equal subdivisions of $[-4, 2]$ are used, what is the trapezoidal approximation of

BC $\int_{-4}^{2} \frac{e^{-x}}{2} dx$?

(A) $e^2 + e^0 + e^{-2}$

(B) $e^4 + e^2 + e^0$

(C) $e^4 + 2e^2 + 2e^0 + e^{-2}$

(D) $\frac{1}{2}\left(e^4 + e^2 + e^0 + e^{-2}\right)$

(E) $\frac{1}{2}\left(e^4 + 2e^2 + 2e^0 + e^{-2}\right)$

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