

CH.4 4.6 HW Approximating Area

Name _____ Per. _____

- 1) To estimate the surface area of his backyard, a man takes several measurements. The measurements are taken every 3 feet for the 36 ft. long yard, where y represents the distance across the yard at each 3 ft. increment.

x	0	3	6	9	12	15	18	21	24	27	30	33	36
y	9	11	8	13	16	10	12	11	14	15	13	11	8

Estimate each Area using 12 subdivisions

- a) Use Trapezoidal Rule
- b) Estimate Avg. value using Trapezoidal Rule
- c) Use Right Endpoint
- d) Use Left Endpoint
- e) Use 6 Midpoint subdivisions
- 2) Given $f(x) = \sqrt{x^2 + 1}$ Approximate Area using 3 subdivisions from $[0,12]$.
- a) Use Trapezoidal Rule
- b) Estimate Avg. value using Trapezoidal Rule
- c) Use Right Endpoint
- d) Use Left Endpoint
- e) Use Midpoint subdivisions
- f) Use calculator to find actual Area

- 3) To estimate the surface area of a pool, a surveyor takes several measurements. The measurements are taken every 5 feet for the 40 ft. long pool, where y represents the distance across the pool at each 5 ft. increment.

x	0	5	10	15	20	25	30	35	40
y	0	12	15	13	16	18	17	15	9

Estimate each Area using 8 subdivisions

- a) Use Trapezoidal Rule
- b) Estimate Avg. value using Trapezoidal Rule
- c) Use Right Endpoint
- d) Use Left Endpoint
- e) Use 4 Midpoint subdivisions

x	0	2	3	6	11	14
y	25	29	32	24	27	30

4) Estimate each Area using 5 unequal subdivisions

- a) Use Trapezoids
- b) Estimate Avg. value using Trapezoids
- c) Use Right Endpoint
- d) Use Left Endpoint