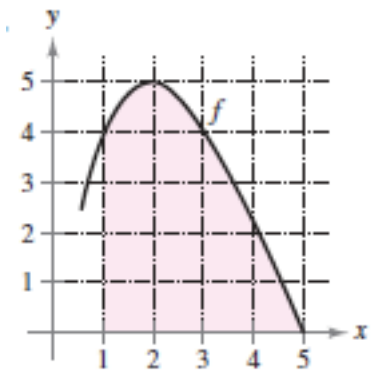
Honors Calculus: Area

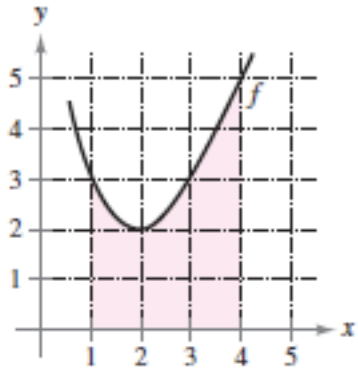
Estimate the area of the shaded region by using rectangles of equal width by utilizing:

(a) Left Sum
(b) Right Sum

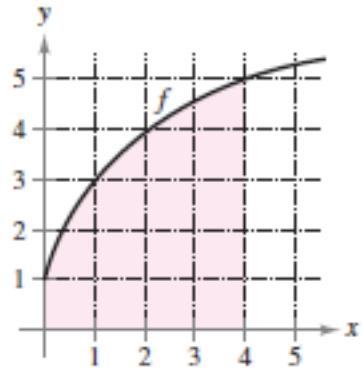
1)



2)



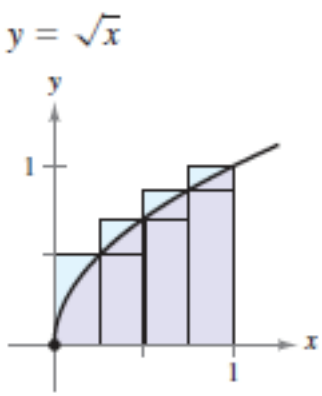
3)



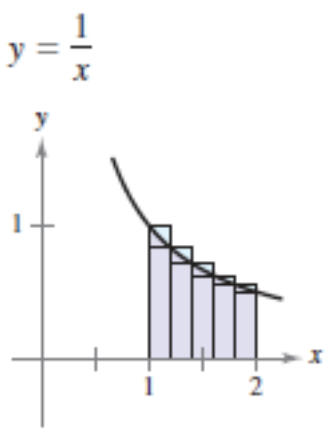
Approximate the area of the region bounded by the function and the x-axis over the indicated interval with subintervals of equal width by utilizing:

(a) Left Sum
(b) Right Sum

4)



5)



Estimate the area of the region bounded by the graph of the function and the x-axis over the indicated interval with four subintervals by utilizing:

(a) Left Sum
(b) Right Sum
(c) Midpoint Rule
(d) Trapezoidal Rule

6) $f(x) = x^2 \quad [1, 5]$

7) $f(x) = 2x^2 + 1 \quad [0, 4]$

8) $f(x) = \sqrt{x} + 2 \quad [0, 2]$

9) $f(x) = \tan x \quad \left[0, \frac{\pi}{4}\right]$

The tables list several values of an unknown continuous function y = f(x). Estimate the area of the region bounded by the graph of the function and the x-axis over the interval on the table with the method indicated.

10) Trapezoidal Rule with 4 subintervals

x	0	8	14	22	24
f(x)	0	7	8	2	0

11) Right Sum with 5 subintervals

x	0	2	5	7	11	12
f(x)	5.7	4.0	2.0	1.2	0.6	0.5

12) Midpoint Sum with 4 subintervals

x	0	10	20	30	40	50	60	70	80
f(x)	5	14	22	29	35	40	44	47	49

13) Midpoint Sum with 4 subintervals

x	0	5	10	15	20	25	30	35	40
f(x)	7.0	9.2	9.5	7.0	4.5	2.4	2.4	4.3	7.3

14) Trapezoidal Rule

x	0	60	120	180	240	300	360
f(x)	24	30	28	30	26	24	26

15) Left Sum

x	2	3	5	8	13
f(x)	1	4	2	3	6

4.2 Area Worksheet Answers

1a	15
1b	11
2a	8
2b	10
3a	12.5
3b	16.5
4a	.518
4b	.768
5a	.746
5b	.646
6a	30
6b	54
6c	41
6d	42
7a	32
7b	64
7c	46
7d	48
8a	5.466
8b	6.173
8c	5.903
8d	5.819
9a	.252
9b	.448
9c	.345
9d	.350
10	115
11	19.3
12	2600
13	229
14	9780
15	30