

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Riemann Sum Tables

Use the table and the stated sampling method to find the exact Riemann-sum area estimate.

1. Left endpoint sum on $[-6, -4]$ with 4 rectangles

f is nonnegative on this interval. Find the exact area estimate.

x	-6	$-23/4$	$-11/2$	$-21/4$	-5	$-19/4$	$-9/2$	$-17/4$	-4
$f(x)$	6	10	6	2	6	5	12	2	1

Width: _____ Sum: _____

2. Right endpoint sum on $[-3, -1]$ with 4 rectangles

f is nonnegative on this interval. Find the exact area estimate.

x	-3	$-11/4$	$-5/2$	$-9/4$	-2	$-7/4$	$-3/2$	$-5/4$	-1
$f(x)$	8	3	6	9	4	2	12	1	11

Width: _____ Sum: _____

3. Right endpoint sum on $[-4, -3/2]$ with 5 rectangles

f is nonnegative on this interval. Find the exact area estimate.

x	-4	$-15/4$	$-7/2$	$-13/4$	-3	$-11/4$	$-5/2$	$-9/4$	-2	$-7/4$	$-3/2$
$f(x)$	5	12	6	7	2	9	8	11	6	10	10

Width: _____ Sum: _____

4. Left endpoint sum on $[3, 11/2]$ with 5 rectangles

f is nonnegative on this interval. Find the exact area estimate.

x	3	$13/4$	$7/2$	$15/4$	4	$17/4$	$9/2$	$19/4$	5	$21/4$	$11/2$
$f(x)$	9	8	10	0	4	9	1	2	6	8	0

Width: _____ Sum: _____

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Riemann Sum Tables

Use the table and the stated sampling method to find the exact Riemann-sum area estimate.

5. Left endpoint sum on [1, 9] with 4 rectangles

f is nonnegative on this interval. Find the exact area estimate.

x	1	2	3	4	5	6	7	8	9
f(x)	6	7	8	6	4	3	5	10	5

Width: _____ Sum: _____

6. Left endpoint sum on [-6, -1] with 5 rectangles

f is nonnegative on this interval. Find the exact area estimate.

x	-6	-11/2	-5	-9/2	-4	-7/2	-3	-5/2	-2	-3/2	-1
f(x)	0	7	12	6	9	10	11	6	6	7	7

Width: _____ Sum: _____

7. Right endpoint sum on [3, 5] with 4 rectangles

f is nonnegative on this interval. Find the exact area estimate.

x	3	13/4	7/2	15/4	4	17/4	9/2	19/4	5
f(x)	11	12	9	9	12	9	3	4	7

Width: _____ Sum: _____

8. Right endpoint sum on [1, 17/2] with 5 rectangles

f is nonnegative on this interval. Find the exact area estimate.

x	1	7/4	5/2	13/4	4	19/4	11/2	25/4	7	31/4	17/2
f(x)	10	1	3	12	0	2	11	1	8	1	12

Width: _____ Sum: _____

Riemann Sum Tables

Answer Key

Use the table and the stated sampling method to find the exact Riemann-sum area estimate.

1. Left endpoint sum on $[-6, -4]$ with 4 rectangles

x	-6	$-23/4$	$-11/2$	$-21/4$	-5	$-19/4$	$-9/2$	$-17/4$	-4
f(x)	6	10	6	2	6	5	12	2	1

Width = $(-4 - (-6)) / 4 = 1/2$.

Selected x-values: -6, $-11/2$, -5, $-9/2$; corresponding heights: 6, 6, 6, 12.

Height sum = $6 + 6 + 6 + 12 = 30$.

Area estimate = $1/2 \times 30 = 15$.

2. Right endpoint sum on $[-3, -1]$ with 4 rectangles

x	-3	$-11/4$	$-5/2$	$-9/4$	-2	$-7/4$	$-3/2$	$-5/4$	-1
f(x)	8	3	6	9	4	2	12	1	11

Width = $(-1 - (-3)) / 4 = 1/2$.

Selected x-values: $-5/2$, -2, $-3/2$, -1; corresponding heights: 6, 4, 12, 11.

Height sum = $6 + 4 + 12 + 11 = 33$.

Area estimate = $1/2 \times 33 = 33/2$.

Riemann Sum Tables

Answer Key

Use the table and the stated sampling method to find the exact Riemann-sum area estimate.

3. Right endpoint sum on $[-4, -3/2]$ with 5 rectangles

x	-4	-15/4	-7/2	-13/4	-3	-11/4	-5/2	-9/4	-2	-7/4	-3/2
f(x)	5	12	6	7	2	9	8	11	6	10	10

Width = $(-3/2 - (-4)) / 5 = 1/2$.

Selected x-values: -7/2, -3, -5/2, -2, -3/2; corresponding heights: 6, 2, 8, 6, 10.

Height sum = $6 + 2 + 8 + 6 + 10 = 32$.

Area estimate = $1/2 \times 32 = 16$.

4. Left endpoint sum on $[3, 11/2]$ with 5 rectangles

x	3	13/4	7/2	15/4	4	17/4	9/2	19/4	5	21/4	11/2
f(x)	9	8	10	0	4	9	1	2	6	8	0

Width = $(11/2 - 3) / 5 = 1/2$.

Selected x-values: 3, 7/2, 4, 9/2, 5; corresponding heights: 9, 10, 4, 1, 6.

Height sum = $9 + 10 + 4 + 1 + 6 = 30$.

Area estimate = $1/2 \times 30 = 15$.

Riemann Sum Tables

Answer Key

Use the table and the stated sampling method to find the exact Riemann-sum area estimate.

5. Left endpoint sum on [1, 9] with 4 rectangles

x	1	2	3	4	5	6	7	8	9
f(x)	6	7	8	6	4	3	5	10	5

Width = $(9 - 1) / 4 = 2$.

Selected x-values: 1, 3, 5, 7; corresponding heights: 6, 8, 4, 5.

Height sum = $6 + 8 + 4 + 5 = 23$.Area estimate = $2 \times 23 = 46$.

6. Left endpoint sum on [-6, -1] with 5 rectangles

x	-6	-11/2	-5	-9/2	-4	-7/2	-3	-5/2	-2	-3/2	-1
f(x)	0	7	12	6	9	10	11	6	6	7	7

Width = $(-1 - (-6)) / 5 = 1$.

Selected x-values: -6, -5, -4, -3, -2; corresponding heights: 0, 12, 9, 11, 6.

Height sum = $0 + 12 + 9 + 11 + 6 = 38$.Area estimate = $1 \times 38 = 38$.

Riemann Sum Tables

Answer Key

Use the table and the stated sampling method to find the exact Riemann-sum area estimate.

7. Right endpoint sum on [3, 5] with 4 rectangles

x	3	13/4	7/2	15/4	4	17/4	9/2	19/4	5
f(x)	11	12	9	9	12	9	3	4	7

Width = $(5 - 3) / 4 = 1/2$.

Selected x-values: 7/2, 4, 9/2, 5; corresponding heights: 9, 12, 3, 7.

Height sum = $9 + 12 + 3 + 7 = 31$.

Area estimate = $1/2 \times 31 = 31/2$.

8. Right endpoint sum on [1, 17/2] with 5 rectangles

x	1	7/4	5/2	13/4	4	19/4	11/2	25/4	7	31/4	17/2
f(x)	10	1	3	12	0	2	11	1	8	1	12

Width = $(17/2 - 1) / 5 = 3/2$.

Selected x-values: 5/2, 4, 11/2, 7, 17/2; corresponding heights: 3, 0, 11, 8, 12.

Height sum = $3 + 0 + 11 + 8 + 12 = 34$.

Area estimate = $3/2 \times 34 = 51$.