AP Calculus BC Name_____

Riemann Sums Practice

For each problem, use a left-hand Riemann sum to approximate the integral based off of the values in the table.

1) $\int_0^{11} f(x)\,dx$

x	0	2	3	4	6	11
$f(x)$	16	14	16	18	14	17

2) $\int_0^{20} f(x)\,dx$

x	0	4	5	13	17	20
$f(x)$	16	13	9	10	5	3

3) $\int_0^{13} f(x)\,dx$

x	0	2	4	6	11	13
$f(x)$	3	4	7	6	4	3

4) $\int_0^{17} f(x)\,dx$

x	0	1	6	7	16	17
$f(x)$	5	6	5	6	5	4

5) $\int_0^{13} f(x)\,dx$

x	0	5	8	10	12	13
$f(x)$	5	7	6	8	7	8

6) $\int_0^{16} f(x)\,dx$

x	0	2	5	8	13	16
$f(x)$	6	4	6	7	8	9

For each problem, approximate the area under the curve over the given interval using 4 midpoint rectangles.

7) $y = -\frac{3}{x};\ [-6, -2]$

8) $y = -x + 6;\ [0, 4]$

For each problem, approximate the area under the curve over the given interval using 4 trapezoids.

9) $y = \frac{2}{x}$; [1, 5]

10) $y = \frac{1}{x}$; [1, 5]

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1) $\int_0^{11} f(x)\,dx$

x	0	2	3	4	6	11
$f(x)$	16	14	16	18	14	17

168

2) $\int_0^{20} f(x)\,dx$

x	0	4	5	13	17	20
$f(x)$	16	13	9	10	5	3

204

3) $\int_0^{13} f(x)\,dx$

x	0	2	4	6	11	13
$f(x)$	3	4	7	6	4	3

66

4) $\int_0^{17} f(x)\,dx$

x	0	1	6	7	16	17
$f(x)$	5	6	5	6	5	4

99

5) $\int_0^{13} f(x)\,dx$

x	0	5	8	10	12	13
$f(x)$	5	7	6	8	7	8

81

6) $\int_0^{16} f(x)\,dx$

x	0	2	5	8	13	16
$f(x)$	6	4	6	7	8	9

101

For each problem, approximate the area under the curve over the given interval using 4 midpoint rectangles.

7) $y = -\frac{3}{x}$; $[-6, -2]$

$\frac{3776}{1155} \approx 3.269$

8) $y = -x + 6$; $[0, 4]$

16

For each problem, approximate the area under the curve over the given interval using 4 trapezoids.

9) $y = \frac{2}{x}$; $[1, 5]$

$\frac{101}{30} \approx 3.367$

10) $y = \frac{1}{x}$; $[1, 5]$

$\frac{101}{60} \approx 1.683$