

Calculus Chapter 4 Review

Know all of your formulas (Page 250)

<u>Topics</u>	<u>Example</u>
Indefinite Integrals	Pg. 255 #21
Solving Differential Equations	Pg. 256 #61
Definite Integrals (Properties)	Pg. 279 39, 41
First Fundamental Theorem	Pg. 293 #13
Second Fundamental Theorem	Pg. 295 #91
Area under a curve	Pg. 293 #39
Average value	Pg. 308 #95*
Riemann Sums (Left, right, Midpoint, Trapezoid)	See below
U-substitution	Pg. 306 # 21

Page 318: 5, 7, 9, 11, 35, 37, 38, 39, 45, 47, 56, 59, 61, 67, 71, 73, 77, 83

Riemann Sums

Estimate the area of the region bounded by the graph of $f(x) = x^2 + 4$ and the x-axis over the interval $[0, 2]$ with four subintervals by utilizing:

1. Left Sum
2. Right Sum
3. Midpoint Rule
4. Trapezoidal Rule

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.

x	2	5	6	10	13	18
F(x)	1	4	7	5	9	13

5. Left sum with 5 subintervals
6. Right sum with 5 subintervals
7. Trapezoids with 5 subintervals

*The directions say to find the area. Find the average value instead. The answer should be

$$\frac{12}{\pi}(\sqrt{3}-1)$$

1	9.75
2	11.75
3	10.625
4	10.75
5	95
6	131
7	113

38	18π
----	---------

56	$\frac{\pi^2}{8} + 1$
----	-----------------------