1 Section 5.2 Hint

2.Use the same process in Example5.2.2 on page 369 with the Riemann sum for left endpoints.

5. Calculate the about value of each Riemann sum for left endpoints, right endpoints and midpoints, respectively.

8. Use the given values in the table, and calculate the about value of each Riemann sum for left endpoints, right endpoints and midpoints, respectively.

9.Take the process for Riemann sum with midpoints approximation.

14. Calculate the Riemann sum of left endpoints and right endpoints for the function $f(x) = \sin(x^2)$. So the derived approximated values are the upper bound and lower bound for$\int_0^1 \sin(x^2)dx$. Finally, deduce the approximation by using Midpoint Rule with $n = 5$ in Ex.11 in two decimal places.

18. Express the definite integral directly.

30. Do a n-partition on the interval $[0, 10]$ and each point x_i can be written as $x_i = 1 + \frac{9i}{n}$. Hence, just express the integral as a limit of Riemann sum.

33. The area around by $0 \leq x$ and $0 \leq y$ and red line is positive value, similarly, under the x-axis and is negative. Each integral can be clearly calculated be the assigned area.

36. It's equal to half the area of the circle with radius 2.

41. Notice that the limits of integration are equal.

47. Use Property 5 and reverse the limits.

66. Apply by triangular inequality and Ex.65, then derive the inequality.

70. The constant term $\frac{1}{n}$ belongs to n-partition in $[0,1]$ and the term $\frac{i}{n}$ can be seen as the x_i in each partition on the interval $[0,1]$, also, the integrand function is $f(x) = \frac{1}{1+x^2}$.