Homework 10, Due Thursday, November 12

Section 4.7, Exercises 11, 12, 28.

Section 4.9, Exercises 1, 5, 11, 32.

Section 5.1, **Exercises 9 and 10*.** (Here you can use Mathematica. I have made a guide for you, with the needed commands programmed for you. Open the Mathematica notebook "integration-exercise.nb" available on the course website, read the description of the available commands, and examine the examples given. Then use this to carry out exercises 9 and 10.)

Exercises 12, 13 18*, 19, 20, 22.

Note for 18 and 19: As a guide, note that the answer for the similar exercise 17 would be as follows: If we take n intervals, then $\Delta x_j = \Delta = 15/n$. We take x_j^* to be the right endpoint of the j–th interval, so $x_j^* = 1 + j(15/n)$. Since the function to be integrated is $f(x) = \sqrt[4]{x}$, the approximating sum would be

$$(15/n)\sum_{j=1}^{n} \sqrt[4]{1 + j(15/n)}$$

and the area under the curve is

$$\lim_{n\to\infty} \left((15/n)\sum_{j=1}^{n} \sqrt[4]{1 + j(15/n)} \right).$$

Section 5.2, **Exercises 2 and 3.** Here it might be best to write out the sum by hand, and to evaluate it using a pocket calculator.

Exercises 8, 10 For 10, also use Mathematica to compute the sum with $n = 50$.