

21-112 Calculus II

Announcement of Test #3

Test #3 will be administered in lecture on Friday, March 22, 2002. This is a closed-book and closed-note exam. Calculators are not permitted. This test will cover Sections 7.1 through 7.5.

The following rules will be provided with the exam:

Trapezoidal Rule: Let f be continuous on $[a, b]$, let $\Delta x = \frac{b-a}{n}$, and set
 $x_0 = a, \quad x_1 = a + \Delta x, \quad x_2 = a + 2\Delta x, \quad \dots, \quad x_n = a + n\Delta x = b.$

Then

$$\int_a^b f(x) dx \approx \frac{b-a}{2n} \{f(x_0) + 2f(x_1) + 2f(x_2) + \dots + 2f(x_{n-1}) + f(x_n)\}.$$

Simpson's Rule: Let f be continuous on $[a, b]$. Let n be an even integer and let $\Delta x = \frac{b-a}{n}$. Set

$$x_0 = a, \quad x_1 = a + \Delta x, \quad x_2 = a + 2\Delta x, \quad \dots, \quad x_n = a + n\Delta x = b.$$

Then

$$\int_a^b f(x) dx \approx \frac{b-a}{3n} \{f(x_0) + 4f(x_1) + 2f(x_2) + 4f(x_3) + 2f(x_4) \\ + \dots + 2f(x_{n-2}) + 4f(x_{n-1}) + f(x_n)\}.$$