

32 Monday, November 27

Numerical Integration

Left/Right Endpoint Approximations:

Trapezoidal Rule:

Example. Approximate the integrals using the left/right endpoint approximations and trapezoidal rule.

(1) $\int_1^2 x dx, = 4$

$$(2) \int_{-1}^1 (x^2 + 1)dx, n = 4$$

(3) $\int_0^2 (x^3 + x)dx, n = 4$

$$(4) \int_0^\pi \sin t dt, n = 4$$

$$(5) \int_2^8 \frac{1}{(s-1)^2} ds, \, n = 8$$

(6) $\int_1^3 \frac{\sin x}{x} dx, n = 4$

$$(7) \int_0^3 \frac{1}{\sqrt{1+x}} dx, n = 6$$

(8) $\int_0^1 \sqrt{1+x^4} dx, n=4$