

M1B/Schoenbrun Section 7.7 Numerical Integration

Part 1)

For each integral calculate the exact value using an anti-derivative, or use a calculator. Then for each integral / N option, fill in the left-point, right-point, mid-point and trapezoidal rule estimate.

Note the N's are the number of data points, so the number of intervals is N-1.

Integral	Exact	N	Left	Right	Mid	Trap	Simpson
$\int_0^1 \frac{1}{1+x^2} dx$		5					
$\int_0^1 \frac{1}{1+x^2} dx$		11					
$\int_0^{\pi} \frac{\sin x}{1+x} dx$		5					

Check the relative accuracy of each estimate.

Part 2) Fill in estimate using Simpson's rule, and compare it with the other estimates.