Approximate the the Integral (1/sqrt(2\*pi)) \* Integral(exp((-1/2)\*x^2)) from -1 to 1

The answer to this integral is 0.68268949

METHOD ORDER APPROXIMATION (n=10)

Left Sum 2.00000 0.68269

Center Sum 2.00000 0.68269

Right Sum 2.00000 0.68269

Extrapolated Table

h M(h) M1(h)

1.00000 0.70413 0.00000

0.50000 0.68781 0.68236

0.25000 0.68395 0.68267

0.12500 0.68300 0.68269

0.06250 0.68277 0.68269

0.03125 0.68271 0.68269

0.01562 0.68269 0.68269

0.00781 0.68269 0.68269

0.00391 0.68269 0.68269

0.00195 0.68269 0.68269

As seen from the table, the extrapolated model of M(h) (The center sum model)

matches the model for step size 0.125

Value Error

The value of thec center-rectangle rule applied with adaptive quadrature is 0.6826894

Value Error

Real Answer: 0.68268949

Left Rectangle: 0.68268934 0.00000015

Center Rectangle: 0.68268957 0.00000008

Right Rectangle: 0.68268934 0.00000015

Extrapolated CR: 0.68268949 0.00000000

Adaptive Quad CR: 0.68268943 0.00000006

It is clearly shown that the lowest error, is that of the extrapolation for the center rectangle rule.