

The actual value of the integral is 4.4

SIMPSON'S METHOD

The approximate value for the integral using the Simpson's method with 10 slices is 4.400426666666667

The fractional error on numerical integration (Simpson) with 10 slices is 9.696969696972666e-05

The approximate value for the integral using the Simpson's method with 100 slices is 4.400000042666668

The fractional error on numerical integration (Simpson) with 100 slices is 9.696969893724372e-09

The approximate value for the integral using the Simpson's method with 1000 slices is 4.400000000004267

The fractional error on numerical integration (Simpson) with 1000 slices is 9.697293473271367e-13

TRAPEZOIDAL METHOD

The approximate value for the integral using the Trapezoidal method with 10 slices is 4.50656

The fractional error on numerical integration (Trapezoidal) with 10 slices is 0.0242181818181812

The approximate value for the integral using the Trapezoidal method with 100 slices is 4.401066656

The fractional error on numerical integration (Trapezoidal) with 100 slices is 0.00024242181818179273

The approximate value for the integral using the Trapezoidal method with 1000 slices is 4.4000106666656

The fractional error on numerical integration (Trapezoidal) with 1000 slices is 2.4242421817452255e-06

Thus we can see that for both methods as we increase the number of slices the accuracy of the integral improves. Also for each every number of slices the error in the integral is very less in the case of Simpson's method when compared to Trapezoidal method