



Using equal spaced points, the error can be bounded by $1/(N^{2/5})$, as displayed. This error was found experimentally. In the form $O(1/(N^p))$, $P = 2/5$.

Monte Carlo integration is based on random sample points, and therefore the error is strictly $O(1)$. It may fail because the points could, however unlikely, randomly be placed in a way that misrepresents the integral. However, because Monte Carlo integration is a collection of random sample points, the standard error of the mean applies. Standard error of the mean decreases with a rate of $1/(N^{1/2})$, so the mean of Monte Carlo integration is $O(1/(N^{1/2}))$. In the form $O(1/(N^p))$, $P = 1/2$.