

```
1 #include <iostream>
2 #include <cmath>
3 #include <random>
4
5 //The sample size for plotting final distribution - this many numbers will be drawn
6 constexpr size_t samplesize = 100000;
7
8 int main() {
9     std::random_device dev; //Responsible for getting a random seed from OS
10    std::mt19937_64 rng(dev()); //Mersenne Twister engine with the seed for generating pseudo-random numbers
11    std::uniform_real_distribution<double> dist(0,1); // distribution in range [0, 1]
12
13    double Sn = 0; //Counter for total
14
15    for (size_t i = 0; i < samplesize; i++) {
16        double x = dist(rng), y = dist(rng);
17        if (y < exp(- x * x)) {
18            Sn++;
19        }
20    }
21
22    std::cout << "The integration value is: " << Sn / samplesize <<
23    std::endl;
```