integral

October 25, 2020

[16]:
```
import numpy as np
import array as a
from scipy.stats import expon
import matplotlib.pyplot as plt
```

[11]:
```
path = '/users/larafs/desktop/cs190I/uniform_integral.dat'
uniform = np.loadtxt(path)
```

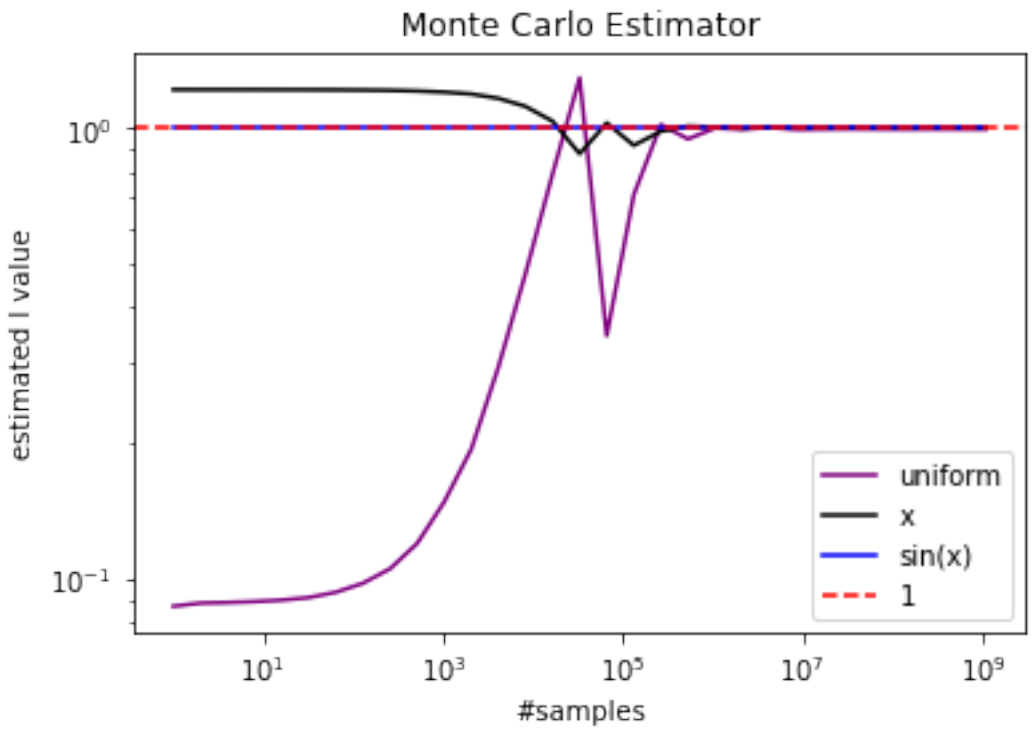
[12]:
```
path = '/users/larafs/desktop/cs190I/x_integral.dat'
x_pdf = np.loadtxt(path)
```

[13]:
```
path = '/users/larafs/desktop/cs190I/sinx_integral.dat'
sinx_pdf = np.loadtxt(path)
```

[10]:
```
a = [0] * 31
for i in range(31):
    a[i] = 1 * (2**i)
```

[9]:
```
plt.title("Monte Carlo Estimator")
plt.xlabel("#samples")
plt.ylabel("estimated I value")

n = 1;
plt.plot(a, uniform, label='uniform', color='purple')
plt.plot(a, x_pdf, label='x', color='black')
plt.plot(a, sinx_pdf, label='sin(x)', color='blue')
plt.axhline(y=1, xmin=0.0, xmax=1.0, label='1', color='red', linestyle='--')
plt.yscale('log')
plt.xscale('log')
plt.legend()
plt.show()
```


Monte Carlo Estimator
estimated I value
10^0
10^{-1}
10^1
10^3
10^5
10^7
10^9
#samples
uniform
x
sin(x)
1