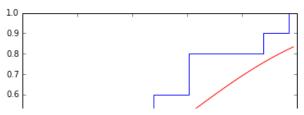
```
In [28]: import numpy as np
import random
import matplotlib.pyplot as plt
import scipy.stats as sps
from scipy.stats import cumfreq
from scipy.stats import norm
from numpy import histogram
import statsmodels.api as sm
%matplotlib inline
k = 5
N = 10**4
Arr = sps.norm.rvs(size = N)
nums = [10, 25, 50, 100, 1000, 10000]
def plotEmpiricalDistr(arr, n):
    ecdf = sm.distributions.ECDF(arr)
    x = np.linspace(min(arr), max(arr))
    y = ecdf(x)
     plt.step(x, y)
     plt.plot(x, sps.norm.cdf(x), 'r', label = r'$\aleph(0,1)$')
     plt.show()
for n in nums:
    if n <= N:
         plotEmpiricalDistr(Arr[0:n:], n)
def countD(arr):
    D = []
     for n in range(len(arr)):
         maxVal = 0
         distr_n = np.linspace(min(arr[0:n:]), max(arr[0:n:]))
         for \times in arr[0:n:]:
             maxVal = abs(distr_n.cdf(x) - sps.norm.cdf(x))
         D += [maxVal]
    A X = np.arange(1, len(arr) + 1, 1)
     plt.plot(A_X, D, 'c', label = r'$D_{n} = \sup_{x \in \mathbb{F}_{n}(x) - F(x)|$')
     plt.xlabel('n')
     plt.ylabel('D(n)')
     plt.legend(loc = 'best')
     plt.show()
```



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