import random as r

import matplotlib.pyplot as plt

import networkx as nx

import numpy as np

def walk(n,p):

start=r.randint(0,n-1)

g=nx.erdos\_renyi\_graph(n,p)

count =0

s=set()

v=start

while len(s)<n:

count=count+1

nbr=nx.neighbors(g,v)

graph=[]

for x in nbr:

graph.append(x)

ran=r.choice(graph)

v=ran

s.add(ran)

return count

avg=[]

for x in range(20,300):

z=[]

for j in range(10):

z.append(walk(x,0.3))

avg.append(np.average(z))

print x,'->',avg[-1]

plt.plot(range(20,300),avg)

plt.show()