import matplotlib.pyplot as plt

import numpy as np

import random

import math

def linear\_congruential\_generator(a, b, c, M, num\_terms):

    sequence = []

    x = c

    for \_ in range(num\_terms):

        sequence.append(x)

        x = (a \* x + b) % M

    return sequence

# Ask user for input values

print("Linear Congruential Generator (LCG) Simulation")

a = int(input("Enter the multiplier (a): "))

b = int(input("Enter the increment (b): "))

c = int(input("Enter the seed (c): "))

M = int(input("Enter the modulus (M): "))

n = int(input("Enter how many terms to generate: "))

# Generate sequence

lcg\_sequence = linear\_congruential\_generator(a, b, c, M, n)

# Output

print("\nGenerated LCG Sequence:")

for i, val in enumerate(lcg\_sequence):

    print(f"x{i} = {val}")