

Aim:

Write a Python program to generate the sine series for a given angle in radians. The sine series is computed using the formula:

$$\sin(x) = x - (x^3)/3! + (x^5)/5! - (x^7)/7! + \dots$$

Your program should take an angle in radians as input and calculate the sine value using the sine series up to a specified number of terms. The program should print the calculated sine value.

Note: round the final output to 2 decimal places.

Example:

Input:

Angle (in radians): 0.8

Number of terms: 5

Output:

Sine value: 0.72

Source Code:

sineSeries.py

```
import math as m
a=float(input("Angle (in radians): "))
b=int(input("Number of terms: "))
sin=a
for i in range(1,b):
    n=(-1)**i
    sin=sin+((a**(2.0*i+1))/m.factorial(2*i+1))*n
print("Sine value:", "%.2f"%sin)
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Angle (in radians): 0.8
Number of terms: 5
Sine value: 0.72

Test Case - 2
User Output
Angle (in radians): 10
Number of terms: 4
Sine value: -1307.46