SINE SERIES

#include<stdio.h>

#include<math.h>

int main() {

double angle, radians, result;

int n, i;

printf("Enter the angle in degrees: ");

scanf("%lf", &angle);

// Convert angle from degrees to radians

radians = angle \* (M\_PI / 180.0);

printf("Enter the number of terms in the series: ");

scanf("%d", &n);

result = 0;

for (i = 0; i < n; i++) {

double term = pow(-1, i) \* pow(radians, 2 \* i + 1) / tgamma(2 \* i + 2);

result += term;

}

printf("Sine of %.2lf degrees using %d terms: %.4lf\n", angle, n, result);

printf("Sine of %.2lf degrees using built-in function: %.4lf\n", angle, sin(radians));

return 0;

}

OUTPUT:

Enter the angle in degrees: 90

Enter the number of terms in the series: 5

Sine of 90.00 degrees using 5 terms: 1.0000

Sine of 90.00 degrees using built-in function: 1.0000