

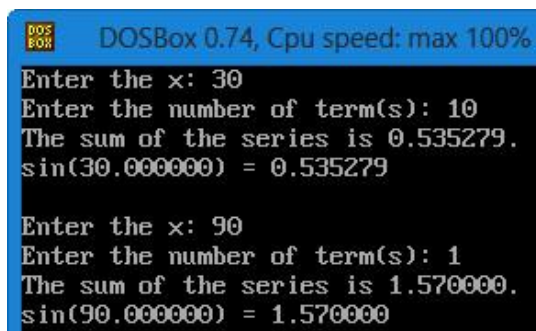
1. Expand $\sin(x)$ to n terms and find its value.

Hint: $\sin(x) = x - x^3/3! + x^5/5! - x^7/7! + \dots + x^n/n!$ where x is in radian

Program Code

```
#include<stdio.h>
#include<math.h>
void main(){
    int i,n,j;
    float y, sum=0.0, x, fact=1;
    clrscr();
    printf("Enter the x: ");
    scanf("%f",&x);
    printf("Enter the number of term(s): ");
    scanf("%d", &n);
    y=(3.14/180)*x;
    for(i=1;i<=n;i++){
        for(j=1;j<=i;j++){
            fact*=j;
        }
        if(i%2!=0){
            sum+=pow(y,i)/fact;
        }
    }
    printf("The sum of the series is %f.\nsin(%f) = %f\n\n", sum, x, sum);
    getch();
}
```

Output:



```
DOS BOX  DOSBox 0.74, Cpu speed: max 100%
Enter the x: 30
Enter the number of term(s): 10
The sum of the series is 0.535279.
sin(30.000000) = 0.535279

Enter the x: 90
Enter the number of term(s): 1
The sum of the series is 1.570000.
sin(90.000000) = 1.570000
```

Tasks:

1. Expand $\sin(x)$ to n terms and find its value without using `math.h` header file.
2. WAP to evaluate $\cos(x) = x - x^2/2! + x^4/4! - \dots + x^n/n!$