CSE102 Structured Programming Language Sessional

Online on loops

Section: C

Time: 40 minutes

Problem description

In this program, you will be given an integer n for the number of terms in a series. To get an idea about the series, let's consider an example.

If $n = 1$, the series will be
$(1) * (2) = 2$

If $n = 2$, the series will be
$(1) * (2) + (1 - 3) * (2 - 4) = 6$

If $n = 3$, the series will be
$(1) * (2) + (1 - 3) * (2 - 4) + (1 - 3 + 5) * (2 - 4 + 6) = 18$

If $n = 4$, the series will be
$(1)*(2)+(1-3)*(2-4)+(1-3+5)*(2-4+6)+(1-3+5-7)*(2-4+6-8) = 34$

Your task is to:

1. **Print the sum of the series**
2. **Print the series (up to the n-th term in the console)**

Rules

- You cannot use any library functions except printf() and scanf(). No other function usage is allowed
- You cannot define your own function. Write all your code in main()

Input

The input contains an integer n $(1 \leq n \leq 10)$.

Output

In the first line, print the series. You don't have to follow the spacing given in the sample I/O. Then in the next line, print "sum=", then print the sum.

Sample I/O

Input	Output
3	(1)*(2) + (1 - 3)*(2 - 4) + (1 - 3 + 5)*(2 - 4 + 6) sum=18
4	(1)*(2) + (1 - 3)*(2 - 4) + (1 - 3 + 5)*(2 - 4 + 6) + (1 - 3 + 5 - 7)*(2 - 4 + 6 - 8) sum=34
7	(1)*(2) + (1 - 3)*(2 - 4) + (1 - 3 + 5)*(2 - 4 + 6) + (1 - 3 + 5 - 7)*(2 - 4 + 6 - 8) + (1 - 3 + 5 - 7 + 9)*(2 - 4 + 6 - 8 + 10) + (1 - 3 + 5 - 7 + 9 - 11)*(2 - 4 + 6 - 8 + 10 - 12) + (1 - 3 + 5 - 7 + 9 - 11 + 13)*(2 - 4 + 6 - 8 + 10 - 12 + 14) sum=156

Marks distribution

Total marks:	20
Calculating sum correctly:	10
Printing the series correctly:	10

Submission Guideline

1. Create a new folder named "<*your 7-digit student ID*>*_online_loop*".
2. Your .c file should be named "<*your 7-digit student ID*>*.c*".
3. Put your .c file (not .exe or .o files) in the folder created in step 1.
4. Right click on the folder, select "*send to > compressed (zipped) folder*" to zip the folder.
5. Submit the zip file on moodle.

For example, if your student ID is 2305999, then, write your collusion in "2305999.c" and create a folder called "2305999_online_loop". Put the .c file in the folder and zip it.