



Homework 1

Due date: Feb. 4, 11:55PM EST. Scored 0-3

You may discuss any of the assignments with your classmates and instructional staff (or anyone else) but **all work for all assignments must be entirely your own**. Any sharing or copying of assignments will be considered cheating.

The purpose of this assignment is to make sure that you properly setup access to GitHub course repositories and that you can write, compile and run a basic C program.

You should be working within the virtual machine that you downloaded for the course, so that you get used to that environment.

Program Description:

Write a C function with type `int` argument `n` and type `double` argument `x` that returns as its value the sum of the first `n` terms of the series:

$$x + \frac{x^2}{2} + \frac{x^3}{3} + \frac{x^4}{4} + \dots + \frac{x^n}{n}$$

This series is undefined when `n` is negative or zero. Your function should return `-1` if it is called with value of `n` that is negative or zero.

Write the `main` function in the same file that uses the above function to display the values of the series for four different values of `x`: `1.0`, `0.1`, `3.14` and `23.0`, and several different values of `n`: `-2`, `-1`, `0`, `1`, `...`, `10`.

You should format the output of this program to look as shown on the next page. Use `printf` function to provide alignment and display specific number of decimal places (if you are not sure how to do this, ask questions about use of `printf`).

Accessing and submitting this homework

You will be given access to a private repository called `YOUR_GITHUB_USERNAME_homework01` on GitHub and, of course, `YOUR_GITHUB_USERNAME` should be replaced by your GitHub username). It contains an empty file `series.c`. You need to implement your code in that file.

To submit the homework, **push** the final version to that repository. You should push intermediate versions as well - this is a way to make sure that you have a backup of the files. We will collect your files from your repository at the due date. (You may make further changes to the code, but they will not be graded.)

Questions

Post any questions you have regarding this assignment to Piazza under the "homeworks" topic.



x	n	series

1.00	-2	-1.0000000000
1.00	-1	-1.0000000000
1.00	0	-1.0000000000
1.00	1	1.0000000000
1.00	2	1.5000000000
1.00	3	1.8333333333
1.00	4	2.0833333333
1.00	5	2.2833333333
1.00	6	2.4500000000
1.00	7	2.5928571429
1.00	8	2.7178571429
1.00	9	2.8289682540
1.00	10	2.9289682540

x	n	series

0.10	-2	-1.0000000000
0.10	-1	-1.0000000000
0.10	0	-1.0000000000
0.10	1	0.1000000000
0.10	2	0.1050000000
0.10	3	0.1053333333
0.10	4	0.1053583333
0.10	5	0.1053603333
0.10	6	0.1053605000
0.10	7	0.1053605143
0.10	8	0.1053605155
0.10	9	0.1053605156
0.10	10	0.1053605157

x	n	series

3.14	-2	-1.0000000000
3.14	-1	-1.0000000000
3.14	0	-1.0000000000
3.14	1	3.1400000000
3.14	2	8.0698000000
3.14	3	18.3895146667
3.14	4	42.6924427067
3.14	5	103.7413979431
3.14	6	263.4861641453
3.14	7	693.4277920378
3.14	8	1874.6924146727
3.14	9	5171.7332280712
3.14	10	14489.1705667356

x	n	series

23.00	-2	-1.0000000000
23.00	-1	-1.0000000000
23.00	0	-1.0000000000
23.00	1	23.0000000000
23.00	2	287.5000000000
23.00	3	4343.1666666667
23.00	4	74303.4166666667
23.00	5	1361572.0166666668
23.00	6	26034220.1833333336
23.00	7	512437855.4690476060
23.00	8	10301311015.5940475464
23.00	9	210429384511.4829406738
23.00	10	4353080505876.3828125000