In this homework, we are going to get better at solving loop problems.

Question 1. Write a program in C++ to calculate the series (1) + (1+2) + (1+2+3) + (1+2+3+4) + ... + (1+2+3+4+...+n).

Sample Input:

```
6
```

Output:

```
56
```

Question 2. Write an algorithm to calculate fibonacci until nth number.

Sample Input:

```
8
```

Output:

```
1 1 2 3 5 8 13 21
```

Question 3. Write a program to find the sum of the series

$$1 + \frac{1}{2^2} + \frac{1}{3^3} + \ldots + \frac{1}{n^n} .$$

Sample Input:

3

Output:

1.290943287

In all questions make sure your solution is correct and test it with various inputs.