

5 kyu

Recamán Sequence Sum

Python

☆ 8 🏆 0 📈 88% of 16 🎯 14 of 32 👤 GenericPerson

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Task

Find the sum of the first n elements in the Recamán Sequence.

Input range:

```
1000 tests
0 <= n <= 2,500,000
```

Sequence

The sequence is formed using the next formula:

- We start with 0
- At each step i , we subtract i from the previous number
- If the result is not negative, and not yet present in the sequence, it becomes the i th element of the sequence
- Otherwise the i th element of the sequence will be previous number plus i

The beginning of the sequence is $[0, 1, 3, 6, 2, \dots]$ because:

0) 0 <- we start with 0

1) 1 <- $0 - 1$ is negative, hence we choose $0 + 1$

2) 3 <- $1 - 2$ is negative, hence we choose $1 + 2$

3) 6 <- $3 - 3$ is not negative, but we already have a 0 in the sequence, hence we choose $3 + 3$

4) 2 <- $6 - 4$ is positive, and is not present in the sequence yet, so we go for it

Examples

```
rec(0) == 0
rec(1) == 0
rec(2) == 1
rec(3) == 4
rec(4) == 10
rec(5) == 12
```