

K-th Largest Subarray Sum

time limit per test: 1 second (5 seconds for Python)

memory limit per test: 976.6 megabytes

input: standard input

output: standard output

points: 100 · problem code: kthsum · author: inj

Given an array with n elements, what is the k -th largest sub array sum. (A subarray sum is the sum of all elements within a continuous section of the array).

Input

The first line contain integers n and k . The second line contains n integers $a_1, \dots, a_n$, the elements of the array.

Output

Output the k -th largest subarray sum.

Constraints

- $1 \leq n \leq 10^4$
- $1 \leq k \leq \frac{n(n+1)}{2}$
- $1 \leq a_i \leq 10^9$

Example 1

Input

```
10 1
7 7 4 6 3 8 9 8 5 1
```

Output

```
58
```

Example 2

Input

```
3 4
8 10 4
```

Output

```
10
```

Example 3

Input

```
5 6
3 6 9 8 4
```

Output

```
18
```