Problem F. Fancy dancing

There is a weird horse show called 'Fancy Dancing Horses'. In this show, there is a stage that has size k, so at most k horses can be in stage simultaneously.

There are n horses numbered by integers from 1 to N, in the order in which they must appear in the stage. Each horse i is planning to dance in stage for a fixed duration d_i. At first, horses $1, 2, \ldots, k$ appear on stage and start dancing. When the first of these horses completes its own dancing part, it leaves the stage and horse $k + 1$ immediately appears on stage and starts dancing, and so on. So there are always k horses dancing until we run out of horses so that there are no horse to be appeared on stage. The show ends when the last horse completes its own dancing part, at time T.

Obviously, if k increases, the corresponding value of T will decrease. Since the show cannot be too long, you are given l, the upper bound of the show time (i.e. the largest possible value of T)

Write a program that determines the smallest possible value of k, subject to the time constraint.

Input

Your input consists of an arbitrary number of records, but no more than 5.

Each record consists of two lines: The first line contains two integers n ($1 \leq n \leq 10,000$) and l ($1 \leq l \leq 1,000,000$), separated by a space. The second line contains n integers $d_1, d_2, \cdots, d_n$ ($1 \leq d_i \leq 10^5$), each separated by a space. It is guaranteed that from the input, if $k = n$ the show will finish in time l.

The end of input is indicated by a line containing only the value -1.

Output

For each input record, print a line that contains the smallest possible value of k, such that the show will finish not after time l.

Example

Standard input	Standard output
5 8 4 8 7 6 4	4 2

2 10	
10 10	
-1	

Explanation of the example

For the first example: If $k = 4$,

- First, horses 1, 2, 3, and 4 start dancing. Horse 1 will finish dancing at time 4, and immediately horse 5 starts dancing.
- Horse 4 finishes dancing at time 6, but we ran out of horses, so now only 3 horses are dancing.
- Horse 3 finishes dancing at time 7, but we ran out of horses, so now only 2 horses are dancing.
- Both horse 2 and horse 5 finishes dancing at time 8, and every horse finished dancing. So the show ended at time 8.

Time Limit

2 seconds.