Space Mission

Input File: `spacein.txt`
Output File: `spaceout.txt`

Time and Memory Limits: 1 second, 1 GB

The Australian Interstellar Operations Council is planning a space mission to collect gas samples from the nearby star *Albert Major*. Fortunately, recent advancements in spacefaring technology allow practically instant travel to and from the star using single-use portals. Time is limited however, as the star is predicted to turn supernova very soon.

The council is planning to send a probe to retrieve samples some time in the next N days (numbered from 1 to N). You have been tasked with choosing the *launch day* and the *return day* for the probe. **The launch day cannot be the same day as the return day**.

Due to constant fluctuations in the fabric of space-time, it requires C_i units of fuel to use a portal on day i (whether launching or returning).

Each day (including the launch and return days), the probe collects one gas sample from the star. You'd like to collect as many samples as possible, however the council **only has F units of fuel to use in total**.

What is the maximum number of samples you could collect?

Input

- The first line of input contains the two integers N and F.

- The next N lines each contain one integer. The ith of these is C_i, the cost to open a portal on the ith day.

Output

Your program should output a single integer, the maximum number of samples you could collect. **If there is not enough fuel to choose a launch and return day, print -1 instead.**

Sample Input 1	Sample Input 2	Sample Input 3
5 50	7 14	2 4
10	12	4
40	8	1
20	2	
30	16	
75	4	
	6	
	10	

Sample Output 1	Sample Output 2	Sample Output 3
4	5	-1

Explanation

In the first sample input, the council has $F = 50$ units of fuel. If you launch on day 1 and return on day 4, you will collect 4 samples, costing $10 + 30 = 40$ units of fuel. This is the maximum number of samples you can collect.

Day	1	2	3	4	5
Fuel	10	40	20	30	75

In the second sample input, the council has $F = 14$ units of fuel. If you launch on day 2 and return on day 6, you will collect 5 samples, costing $8 + 6 = 14$ units of fuel. This is the maximum number of samples you can collect.

Day	1	2	3	4	5	6	7
Fuel	12	8	2	16	4	6	10

In the third sample input, there is not enough fuel to launch the probe and have it return on a different day, so the answer is -1.

Day	1	2
Fuel	4	1

Subtasks & Constraints

For all test cases:

- $2 \leq N \leq 100\,000$.

- $1 \leq F \leq 1\,000\,000\,000$.

- $1 \leq C_i \leq 1\,000\,000\,000$ for all i.

Additionally:

- For Subtask 1 (20 points), $N \leq 1000$.

- For Subtask 2 (50 points), $F \leq 100$.

- For Subtask 3 (30 points), no special constraints apply.