Problem G
Max Cut Min Flow

Oh no, it's flood season! Water from the mountaintop flows down and floods the town at the mountain's base. We need to do something about it!

The trajectory of the flood has been modeled as a straight path with n checkpoints, labeled 1 to n, where checkpoint 1 is the mountaintop and checkpoint n is the town. All water originates from checkpoint 1, and it proceeds through the checkpoints 2, then 3, then 4... and so on, in order, until it finally reaches the town at checkpoint n.

There are $n-1$ possible *government projects* that you can choose to do, labeled 1 to $n-1$. Project i involves building a barrier between checkpoints i and $i+1$. If this project were to be completed, then any water that *would* flow between those checkpoints is instead **blocked**.

Your purse begins with b pesos. The costs of the projects are conveyed through an array of integers $x_1, x_2, x_3, \ldots, x_{n-1}$. Note that these integers could possibly be negative! Why? Well...

As you'd expect, these large government projects typically cost money. If $x_i \leq 0$, then completing project i results in $|x_i|$ pesos being subtracted from your purse (and you cannot choose to do this project unless you have at least $|x_i|$ pesos in your purse).

On the other hand, using *magic*, it is actually possible for a government project to earn you money instead! If $x_i > 0$, then completing project i actually results in x_i pesos being *added* to your purse! Amazing!

You can choose to do as many projects as you like, in any order, however each project may only be done at most once. You must make sure that water is not able to flow from checkpoint 1 to checkpoint n, but among all such ways to do that, what is the maximum possible value that your purse can end on?

If the task is impossible, please say so as well.

Input Format

The first line of input contains the two space-separated integers n and b, the number of checkpoints and the original amount of money in your purse.

The second line of input contains the $n-1$ space-separated integers $x_1, x_2, x_3, \ldots, x_{n-1}$.

Output Format

If the task is possible, output a single non-negative integer—the maximum possible value of the contents of your purse, among all such ways that accomplish the task.

If the task is impossible, output -1 instead.

Constraints

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$2 \leq n \leq 10^5$ $0 \leq b \leq 10^9$ $-10^4 \leq x_i \leq 10^4$ for each i.

Sample I/O

Input	Output
6 7 3 -1 4 1 -5	15

Input	Output
5 4 -6 -7 -6 -7	-1

Explanation

In the first sample input, we choose to do projects 1 and 3 and 4, so our purse ends on a value of $7 + 3 + 4 + 1 = 15$.

In the second sample input, we don't have enough money in our budget to do any of the government projects. Oh no! I hope the people in the town understand :(