

Overloaded



Somehow you got away with taking 40 credits this semester. At first you had everything under control. Once the Nintendo Switch was released, you spent perhaps a bit too much time playing Breath of the Wild each day. Now, you are starting to regret it. Now that the end of the semester is coming, you still have a ton of assignments due.

At this point, it is looking doubtful that you can get everything done and keeping your 3.0 GPA is looking extremely difficult. But you may still be able to scrape by!

You realize you have H hours remaining to do work and you have n courses this semester. For each course, you have determined if you spend h hours on course i , you will get a grade of $fi(h)$ (where $fi(h)$ is non-decreasing).

You want to determine how many hours you have to spend on each course in order to maximize your average GPA. Note $fi(0) = 0$.

Output should be in the form (hours spent on course 1) (hours spent on course 2) ... (hours spent on course n)

Input Format

Number of courses: n

Number of hours remaining: H

Grade for course 1 after x hours: 1 3 3 3 3 3 3 4 4 4 4

Grade for course 2 after x hours: 0 0 0 0 4 4 4 4 4 4 4 4

...

Grade for course n after x hours: 1 4 4 4 4 4 4 4 4 4 4 4

Constraints

H can only be an integer and you can only spend an integer-number of hours on a single course.

Output Format

$h_1 h_2 \dots h_n$

Sample Input 0

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Number of courses: 4
Number of hours remaining: 12
Grade for course 1 after x hours: 1 3 3 3 3 3 3 4 4 4 4
Grade for course 2 after x hours: 0 0 0 0 4 4 4 4 4 4 4 4
Grade for course 3 after x hours: 0 0 1 2 3 4 4 4 4 4 4 4
Grade for course 4 after x hours: 1 4 4 4 4 4 4 4 4 4 4 4
```

Sample Output 0

```
2 5 3 2
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