

Printing Exams

Timelimit: 1 sec

Problem description

Tomorrow is the big day! The new freshmen are approaching their first ever written exam! But wait... something bad happened to the exam papers. Some of the sheets have been printed less often than the others and some might even have been printed more often than necessary.

Oh no! The printer must be broken again. Quick, find out how many more sheets you have to print of each page such that every student has a complete exam set and you print as few additional pages as possible.

Input

The input consists of:

- one line with two integers n ($1 \leq n \leq 1000$) and s ($1 \leq s \leq 10^9$) that describe the number of sheets in the exam and the number of students.
- in the second line n integers $a_1, \dots, a_n$ ($0 \leq a_i \leq 10^9$) follow, with a_i describing how many times page i has already been printed.

Output

Output n integers $p_1, \dots, p_n$ in one lines, where p_i is the number of sheets that still have to be printed of page i .

Sample input/output

Input	Output
3 100 89 101 70	11 0 30

In this example there are 3 sheets and 100 students. There are 11 pages of the first sheet missing and 30 of the third sheet. For the second sheet more pages have been printed than necessary, so nothing is missing.