Apples

Input file:	B.in
Output file:	B.out
Time limit:	1 second
Memory limit:	64 megabytes

Tima and his $N-1$ friends were picking the apples. Let's numerate everyone from 1 to N for convenience. Tima's number is 1. Tima noticed that he has more apples than his friends, so he decided to share. Tima gave each of them as many apples as he/she had, i.e if someone had X apples, then Tima gave him X more apples. Then the person with number 2 gave each person other than him/her as many apples as they had. And so on, so on, till the N_{th} person. At the end, it turns out that everyone has the same number of apples. Tima wants to know how many apples each of his friends had at the beginning. Tima knows that he had A_1 apples at the beginning.

Input

The first line contains a single integer $T(1 \leq T \leq 1000)$ — number of tests.

Next T lines contains two integers: N $(1 \leq N \leq 50)$,$1 \leq A_1 \leq 10^{16}$.

Output

Output the answer for each test. The answer for the test would be -1 if it's impossible. Otherwise, the answer would be N numbers: $A_1, A_2, .., A_N$. If there are more than one answer, output any of them.

Scoring

There are 4 subtasks in this problem:

1. $1 \leq T \leq 50, N = 2, 1 \leq A_1 \leq 10^6$ — 10 points.
2. $1 \leq T \leq 50, N = 3, 1 \leq A_1 \leq 10^9$ — 15 points.
3. $T = 1, 1 \leq N \leq 50, 1 \leq A_1 \leq 10^5$ — 30 points.
4. $1 \leq T \leq 1000, 1 \leq N \leq 50, 1 \leq A_1 \leq 10^{16}$ — 45 points.

Example

B.in	B.out
2 3 13 2 10	13 7 4 10 6

Note

The first test: At the beginning: $13, 7, 4$. After the 1_{st}: $2, 14, 8$. After the 2_{nd}: $4, 4, 16$. After the 3_{rd}: $8, 8, 8$.