Problem G. A problem of Backtracking

Time limit	1000 ms
Mem limit	1572864 kB
Code length Limit	50000 B
OS	Linux

You have to solve the following problem with Backtracking. You're given a sequence of **10** positive integers n_1 , n_2 , n_3 , ... ,n_9, n_{10} and a positive value **K.**

To solve this problem you need to print a permutation a_1 , a_2 , a_3 , ... ,a_{10} of the numbers {0,1,2,3,4,5,6,7,8,9} such that $\mathbf{a_1 * n_1 + a_2 * n_2 + a_3 * n_3 + ... + a_{10} * n_{10} \leq K}$

Input

In the first line, a single interger T, the number of test cases.

For each test case there will be two lines:

In the first one, 10 positive integers (1 ≤ n_i ≤ 10^9) separeted by spaces.

In the second one, a single positive integer K (1 ≤ K ≤ 10^9).

Output

For each test case print a line with the answer for that test case as following:

Among all the permutations that solve the problem according to the description above, print the lexicographically smallest.

You've to print the permutation in a single line, separating each integer by a simple space.

If no such permutation exists, print a single line with "-1".

Example

Input:

```
2
1 2 3 4 5 6 7 8 9 10
200
1 2 3 4 5 6 7 8 9 10
100
```

Output:

```
2 6 8 9 7 5 4 3 1 0
-1
```