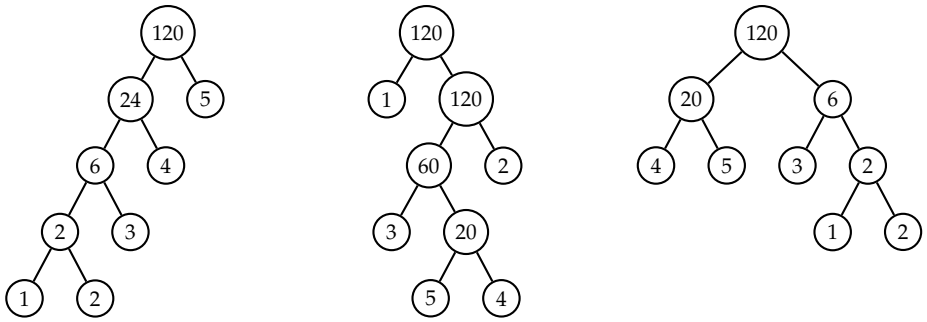
Product trees **P30012_en**

Cinquè Concurs de Programació de la UPC - SemiFinal (2007-09-19)

Let a *product tree* be a binary tree such that every internal node is the product of its two children. For instance, these are some product trees with external nodes 1, 2, 3, 4 and 5:



Let us define the cost of a tree as the product of all its nodes. For the trees above, the costs are $120 * 24 * 5 * 6 * 4 * 2 * 3 * 1 * 2 = 4147200$, $120 * 1 * 120 * 60 * 2 * 3 * 20 * 5 * 4 = 2073600000$, and $120 * 20 * 6 * 4 * 5 * 3 * 2 * 1 * 2 = 3456000$.

Which is the minimum cost for a product tree, given a list of its external nodes?

Input

Input consists of a sequence of cases. Every case begins with n, followed by n real numbers between 1 and 10. Assume $1 \leq n \leq 1000$. A special case with $n = 0$ ends the input.

Output

For every case, print a line with the minimum cost for a product tree with the given external nodes. Print only the integer part of the result. If the result has more than seven digits, print only its most significant seven digits. The input is such that the result always fits into a `double`, and such that there are no precission issues.

Sample input

```
5   1 2 3 4 5
1   7.8
4   2 1 2 1
4   10 10 10 10
9   9.9 8.8 7.7 6.6 5.5 4.5 3.5 2.5 1.5
0
```

Sample output

```
3456000
7
32
1000000
1604498
```

Problem information

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