Bamboo Garden

The zen monks living in a nearby monastery have a problem with their bamboo garden. They have planted n kinds of bamboo b_i and each different type of bamboo grows with rate r_i every day. Each day, one monk goes to the garden and cuts one type of bamboo by 1 (or down to height 0 if the cut bamboo has height $b_i \leq 1$).

Originally the garden was designed as a miniature landscape with all bamboos kept at height below 1. To achieve this, the monks have chosen their bamboo in such a way that $\sum_{i \in [n]} r_i = 1$. Quickly they realize their mistake as some type of bamboo grow higher. Now the monks follow the greedy strategy of always cutting the largest bamboo in the garden. If two bamboo have identical height, the monks cut the bamboo with the smaller index. Under this strategy, what is the largest height a bamboo can grow to given a set of planted bamboo types?

Input: The input consists of the number of bamboo $n \leq 100$ and then the numerators of the growth rates a_i so that $r_i = \frac{a_i}{\sum_{j=1}^{n} a_j}$. For the rates holds, $\sum_{i=1}^{n} a_i \in [2^{31}]$.

Output: The numerator of the maximal height $\max_{i \in [n], t}\{b_i\}$ for any point in time t – the denominator is always $\sum_{i \in [n]} a_i$ and is therefore no part of the output.

We do not want you to simulate the process indefinitely. Let $t_{\max} = \lceil \frac{10}{\min_{i \in \{1,\ldots,n\}} r_i} \rceil$ be the first day when the bamboo with the slowest growth rate has grown by a total amount of at least ten. Output the numerator of the maximum height that occurs on any day $t \leq t_{\max}$.

You can assume that the process observes its maximum within the first ten iterations of the slowest growth rate $t_{\max} \in [0, \frac{10}{\min_r\{r_i\}}]$.

Sample Input:

2

9 1

Sample Output:

18