

XXX NATIONAL OLIMPIAD IN INFORMATICS

National round

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Groups A and B, 9-12 grade, day 2

Problem AB6. Game of cards

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There are n cards and each one of them has a positive integer that is less than 1000 written on it. The cards are aligned next to each other. Martin has come up with a new game. There are $n - 2$ number of turns to be executed in it. In each turn a card from the card sequence is removed excluding the first and the last card. For every removed card there are points given, which are calculated by multiplying the number written on the card with the sum of the numbers written on the 2 cards next to it. Eventually there are only 2 cards left (the first and the last). Write a program **game** which finds the maximum amount of points which can be received by playing the game.

Input

On the first line of the standard input the number n ($3 \leq n \leq 700$) is given. On the next line are the numbers written on the cards with the same arrangement as in the cards sequence.

Output

On the standard output print the maximal amount of points which can be received by playing the game.

Example

Input

```
4
4 5 6 2
```

Output

```
86
```