

D - Casket of Stars

Source file name: `stars.py`

Time limit: 6 seconds

The Casket of Star (sic) is a device in the Touhou universe. Its purpose is to generate energy rapidly. Initially it contains n stars in a row. The stars are labeled 0 through $n-1$ from the left to the right. You are given a weight, where $\text{weight}[i]$ is the weight of star i .

The following operation can be repeatedly used to generate energy:

1. Choose a star x other than the very first star and the very last star.
2. The x -th star disappears.
3. This generates $\text{weight}[x-1] * \text{weight}[x+1]$ units of energy.
4. We decrease n and relabel the stars 0 through $n-1$ from the left to the right.

Your task is to use the device to generate as many units of energy as possible.

Input

The input consists of multiple test cases, each case has a list of numbers weights separated by space, where $\text{weight}[i]$ is the weight of the star i ($3 \leq |\text{weight}| \leq 16$) and ($0 \leq \text{weight}[i] \leq 10000$)

The end of the input happens when a line is equal to 0

Output

Return the largest possible total amount of generated energy for each case.

Sample Input

```
1 2 3 4
100 2 1 3 100
2 2 7 6 90 5 9
477 744 474 777 447 747 777 474
1 1 1 1 1 1 1 1 1 1 1 1 1 1
0
```

Sample Output

```
12
10400
1818
2937051
13
```