Matrix Chain Multiplication1

Given a sequence of matrices to multiply, find the order of multiplication that takes the least number of steps and print the minimum number of multiplications needed to multiply the matrices.

Input Format

The first line will contain t, the number of test cases. For each test case, there will be two lines. The first line will specify k, the number of matrices in the sequence. The next line will have $k+1$ space separated integers that specify the dimensions of the matrices. For example, a sequence of the form 2 3 4 means that the **two** matrices to be multiplied are of dimension 2×3 and 3×4.

Constraints

- $1 \leq t \leq 10^5$
- $1 \leq k \leq 10^3$

Output Format

For every test case, print on a separate line the minimum number of multiplications re-quired for that sequence.

Sample Input 0

```
1
2
10 20 30
```

Sample Output 0

```
6000
```

Sample Input 1

```
1
4
40 20 30 10 30
```

Sample Output 1

```
26000
```