Leonard Euler's Number

"Logic is the foundation of the certainty of all the knowledge we acquire." -Leonhard Euler

Leonhard Euler, made important and influential discoveries in many branches of mathematics, such as infinitesimal calculus and graph theory and had the famous *e* in Calculus named after him. Upon discovery Euler decided to take the chalkbox which has **C** chalks in it with him to explain his **P** peers about it.

Since *e* rounds to 3, Euler decided to use **3** chalks to explain each of his peers about his discovery. For simplicity, he preferred to have at least 2 chalks out of the 3 as equal in length as possible. Chalks once used are not used again for any other peer.

Since Euler is very organised, the chalks in the box are arranged in increasing order. Euler defines the unlikeness of a set of 3 chalks to be the square of difference of lengths of the smallest chalks. The total unlikeness is the sum of the unlikeness of chalks used for each peer. Help him find the minimum possible total unlikeness.

Input Format

First line contains **T**, number of testcase.

Each test case is described in two lines.

First line contains two integers **P**, number of peers and **C**, number of chalks.

Second line contains **C** postive integers in increasing order. L_i indicates the length of the **i^{th}** chalk.

Constraints

- **1 ≤ T ≤ 20**
- **1 ≤ P ≤ 1000**
- **3M ≤ C ≤ 5000**
- **1 ≤ L_i ≤ 40000**

Output Format

Print the minimum unlikeness of each testcase on a new line.

Sample Input 0

```
1
4 15
1 1 1 1 2 3 6 7 8 8 10 12 13 15 17
```

Sample Output 0

```
1
```

Explanation 0

Euler has to explain 4 peers for which he needs 12 chalks. He can take the following chalks for each peer for minimum unlikeness.

(1, 1, 6) (1, 1, 7) (2, 3, 12) (8, 8, 10)

Total unlikeness = $(1-1)^2 + (1-1)^2 + (3-2)^2 + (8-8)^2 = 1$