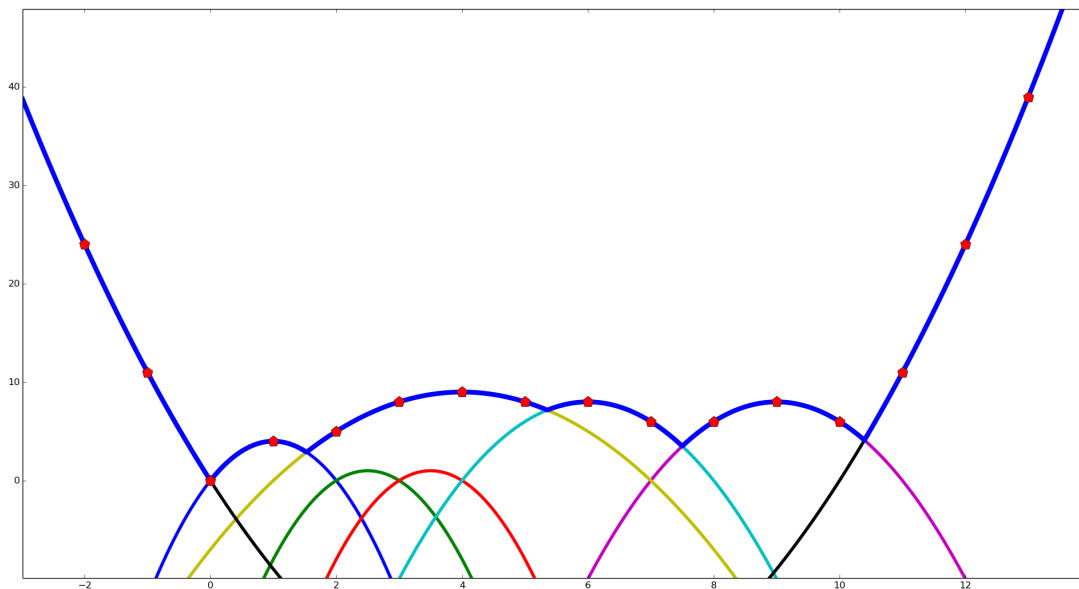

Problem A. Cheering Parabolas

Input file: `parabolas.in`
Output file: `standard output`
Time limit: 4 seconds
Memory limit: 1024 megabytes

The World Cup is approaching, and a lot of people will be sitting to cheer for their teams. There are N cheering groups for N different teams. Since we are looking at the cheering area from a far place, it looks like a 2d plane of rows and columns. The value on the x axis is the column number, which lies between $[-10^6, 10^6]$. The value on the y axis is the row number. In this plane, each cheering group will sit in the shape of a parabola on the form $y_i(x) = A_i x^2 + B_i x + C_i$, where $y_i(x)$ is the row of the i -th cheering group at column x . As it is well known that the team of highest cheering group wins, we would like to know at a specific column x , what is the row of the highest cheering group in this column (i.e. the maximum $y_i(x)$ for all i). Since this is a glorious stadium, you have to answer Q queries about that to check a variety of columns.



Input

The first line contains a single integer $1 \leq T \leq 100$ the number of test cases. Each test case starts with a line containing a single integer $1 \leq N \leq 1500$ the number of cheering groups. The following N lines each has 3 integers A_i, B_i, C_i (where $-10^5 \leq A_i, B_i, C_i \leq 10^5$). The queries start by a line containing a single integer $1 \leq Q \leq 5 \cdot 10^4$ the number of queries. The following Q lines each contains a single integer x the column number, where $-10^5 \leq x \leq 10^5$.

Output

In the beginning of each test case, print a single line displaying the case number, followed by Q lines each containing 2 space separated integers; the first integer is the index i (0-based) of the cheering group (since we need to know who they are cheering for, if there are multiple such groups, just print the index of any of them), and the second is the row number $y_i(x)$ of the group i at column x .

Example

parabolas.in	standard output
1	Case 1:
7	6 11
-4 8 0	6 24
-4 20 -24	6 0
-4 28 -48	0 4
-2 24 -64	5 5
-2 36 -154	5 8
-1 8 -7	5 9
1 -10 0	5 8
16	3 8
-1	3 6
-2	4 6
0	4 8
1	4 6
2	6 11
3	6 24
4	6 39
5	
6	
7	
8	
9	
10	
11	
12	
13	