

C. Place for a Selfie

time limit per test: 2 seconds
memory limit per test: 256 megabytes

The universe is a coordinate plane. There are n space highways, each of which is a straight line $y = kx$ passing through the origin $(0, 0)$. Also, there are m asteroid belts on the plane, which we represent as open upwards parabolas, i. e. graphs of functions $y = ax^2 + bx + c$, where $a > 0$.

You want to photograph each parabola. To do this, for each parabola you need to choose a line that does not intersect this parabola and does not touch it. You can select the same line for different parabolas. Please find such a line for each parabola, or determine that there is no such line.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^4$). The description of the test cases follows.

The first line of each test case contains 2 integers n and m ($1 \leq n, m \leq 10^5$) —the number of lines and parabolas, respectively.

Each of the next n lines contains one integer k ($|k| \leq 10^8$), denoting a line that is described with the equation $y = kx$. The lines are not necessarily distinct, k can be equal to 0.

Each of the next m lines contains 3 integers a , b , and c ($a, |b|, |c| \leq 10^8, a > 0$) — coefficients of equations of the parabolas $ax^2 + bx + c$. The parabolas are not necessarily distinct.

It is guaranteed that the sum n over all test cases does not exceed 10^5 , and the sum m over all test cases also does not exceed 10^5 .

Output

For each test case, output the answers for each parabola in the given order. If there is a line that does not intersect the given parabola and doesn't touch it, print on a separate line the word "YES", and then on a separate line the number k — the coefficient of this line. If there are several answers, print any of them. If the line does not exist, print one word "NO".

You can output the answer in any case (upper or lower). For example, the strings "yEs", "yes", "Yes", and "YES" will be recognized as positive responses.

The empty lines in the output in the example are given only for illustration, you do not need to output them (but you can).

Example

input

```
5
1 2
1
1 -1 2
1 -1 3
2 2
1
4
1 2 1
2 5 1
1 1
0
1 0 0
1 1
10000000
10000000 10000000 10000000
2 3
0
2
2 2 1
1 -2 1
1 -2 -1
```

Copy

output

```
YES
1
YES
1

YES
1
YES
4

NO

YES
10000000

YES
0
NO
NO
```

Copy

Codeforces Round 862 (Div. 2)

Finished

Practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win)

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
213102607	Jul/10/2023 13:58	Accepted
213101183	Jul/10/2023 13:47	Accepted
213101063	Jul/10/2023 13:46	Accepted
213101003	Jul/10/2023 13:45	Wrong answer on test 3
213100852	Jul/10/2023 13:44	Wrong answer on test 3
213100428	Jul/10/2023 13:41	Wrong answer on test 4
213099994	Jul/10/2023 13:38	Wrong answer on test 2
213099313	Jul/10/2023 13:33	Wrong answer on test 2
213099148	Jul/10/2023 13:31	Wrong answer on test 2
213098214	Jul/10/2023 13:24	Wrong answer on test 2

→ Problem tags

binary search data structures geometry math *1400

No tag edit access

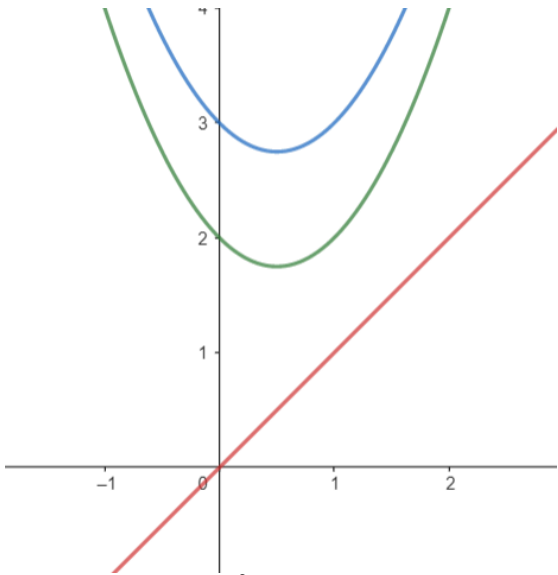
→ Contest materials

Announcement

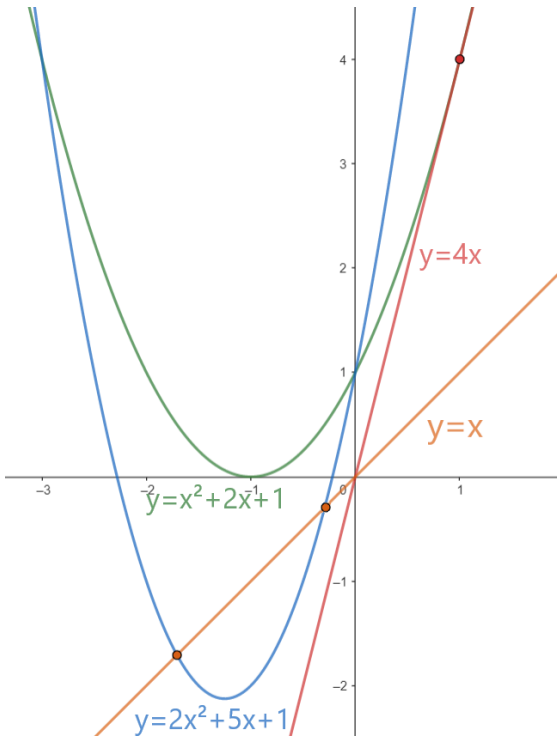
Tutorial

Note

In the first test case, both parabolas do not intersect the only given line $y = 1 \cdot x$, so the answer is two numbers 1.



In the second test case, the line $y = x$ and the parabola $2x^2 + 5x + 1$ intersect, and also the line $y = 4x$ and the parabola $x^2 + 2x + 1$ touch, so these pairs do not satisfy the condition. So for the first parabola, the answer is 1 ($y = 1x$), and for the second parabola — 4.



In the third test set, the line and the parabola intersect, so the answer is "NO".

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