

# Classification Problem

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**Time Limit:** 2.0s   **Memory Limit:** 256M

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You are given  $N$  parabolas opening to the bottom and  $Q$  queries with an x-axis (horizontal) coordinate each. Your mission, should you choose to accept it, is to answer each query by printing the (one-based) index of the parabola whose value is the highest at the corresponding x-axis coordinate.

It is guaranteed that each parabola will be unique and none of the query points will be at the intersection of two parabolas whose values are the highest.

## Input

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The first line contains two integers,  $N$  and  $Q$ .

The next  $N$  lines contains 2 integers  $b_i$  and  $c_i$  each, which correspond to the coefficients of parabolas in the form of  $y_i = -x^2 + b_i x + c_i$ .

The next  $Q$  lines contain one integer  $x_i$  each, which correspond to x-axis coordinates where the parabolas should be evaluated.

- $1 \leq N, Q \leq 10^5$
- $-10^9 \leq b_i, c_i \leq 10^9$
- $-10^9 \leq x_i \leq 10^9$

## Output

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Print  $Q$  integers which correspond to the (one-based) index of the parabola that is the highest at the query point.

## Example

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Input 1:

```
2 3
-6 -4
3 5
-4
5
2
```

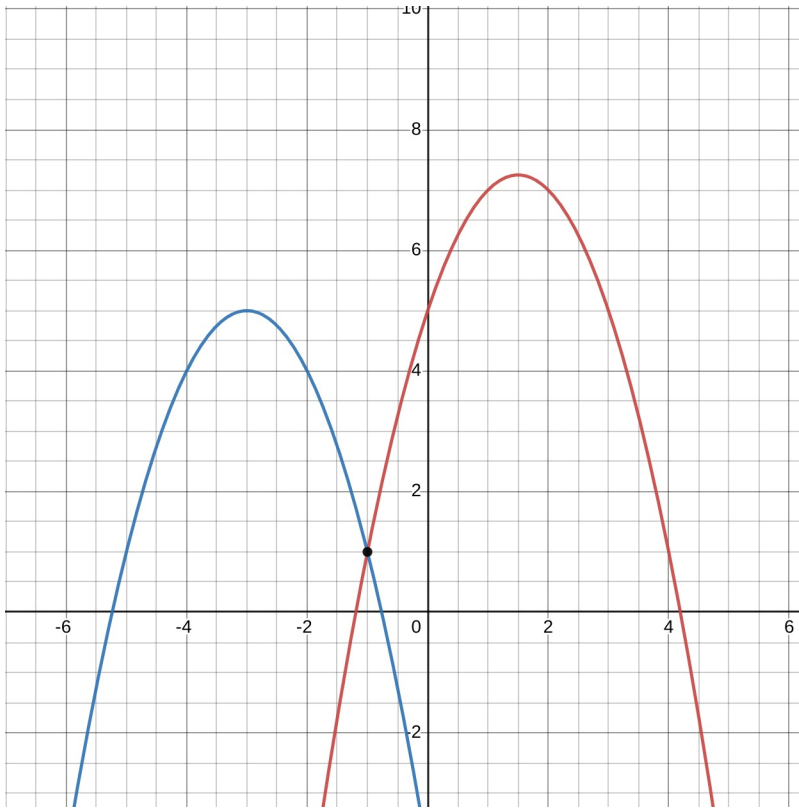
Output 1:

1  
2  
2

## Explanation

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**Input 1:**



The blue parabola corresponds to parabola 1 and the red parabola corresponds to parabola 2.