

# TSOC '15 Contest 2 #5 - Bebiliths

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Regroup! Regroup!

The caves have been completely traversed, and Mr. Benum has been located! However, the quest is not over. Swarms of **bebiliths**, or spider-monsters the size of elephants, are swiftly decimating the ex-convicts! It is up to Max to command the remaining ex-convicts so that they can exterminate the bebilith army. But first, Max has to ensure that the ex-convicts will stay alive!

There are  $N$  ( $1 \leq N \leq 50\,000$ ) bebiliths in pursuit of one of the groups of ex-convicts. Each bebilith has a speed  $B$  ( $0 \leq B \leq 10^9$ ), a venom-spitting distance  $D$  ( $0 \leq D \leq 10^9$ ) and a claw sharpness  $C$  ( $0 \leq C \leq 10^9$ ) (where the bebilith with the sharpest claw has the highest value of  $C$ ). Meanwhile, the ex-convicts are running at a uniform speed  $S$  ( $0 \leq S \leq 10^9$ ).

If two bebiliths have the same speed and are faster or at pace with the ex-convicts, the bebilith with the sharpest claws is more dangerous. However, if two bebiliths have the same speed but are slower than the ex-convicts, the bebilith that spits venom the farthest is more dangerous. Otherwise, if two bebiliths have different speeds, the faster one is more dangerous. Max numbers each bebilith for from 1 to  $N$ . If there is a tie between two bebiliths in terms of how dangerous they are, the one that is numbered the lowest is considered more dangerous. Help Max determine what number represents the  $i^{th}$  most dangerous bebilith  $Q$  ( $1 \leq Q \leq N$ ) times!

## Input Specification

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First line:  $S$

Second line:  $N$

Next  $N$  lines: Three space-separated integers  $B_j$   $D_j$   $C_j$  on each line. Line  $j$  represents the characteristics of the  $(j - 2)^{th}$  bebilith.

Line  $N + 2$ :  $Q$

Next  $Q$  lines: A single integer  $i$  on each line, indicating that the  $i^{th}$  most dangerous bebilith's number should be reported back to Max.

## Output Specification

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$Q$  lines of the  $i^{th}$  most dangerous bebilith's number as queried.

## Sample Input

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```
5
4
7 29 61
7 42 59
4 1 441221001
3 7 9996999
4
1
2
3
4
```

## Sample Output

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1
2
3
4
```

## Explanation

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Bebiliths 1 and 2 have the same speed, and both are the fastest. Their speed is greater than Max's speed. Bebilith 1 has sharper claws, so it is the most dangerous, while bebilith 2 is the 2<sup>nd</sup> most dangerous. Bebilith 3 is faster than bebilith 4, so they are the 3<sup>rd</sup> and 4<sup>th</sup> most dangerous, respectively.