Problem J
Joining Flows
Time limit: 0 seconds



Picture by André Karwath, cc by-sa

Having recently taken over the Wonka Factory, Charlie is now in charge of the day-to-day production of the various chocolate products made there. While this may seem like a cushy job with an all-you-can-eat-chocolate perk, it also comes with the difficult responsibility of keeping the (somewhat convoluted and complicated) production lines working.

The heart of the factory is the Chocolate River, where raw molten chocolate flows from k chocolate-producing faucets, to outlets where different types of pralines and choclate bars are made. The i'th of the k chocolate faucets produces chocolate at some fixed temperature t_i, and the amount of chocolate flowing from the faucet can be adjusted to any value between a_i and b_i millilitres per second. Suppose the k taps are adjusted to produce $x_1, x_2, \ldots, x_k$ millilitres of chocolates per second respectively (where $a_i \leq x_i \leq b_i$). Then the total flow in the Chocolate river is $x_1 + x_2 + \ldots + x_k$, and its temperature is the weighted average

$$\frac{x_1 t_1 + x_2 t_2 + \ldots + x_k t_k}{x_1 + x_2 + \ldots + x_k}$$

(each faucet produces grade A quality chocolate which instantly mixes with the chocolate from the other faucets).

Each type of praline and chocolate bar produced at the factory requires the Chocolate River to be adjusted to have a specific temperature and flow level. Charlie recently came across a long list of new praline recipies, and would now like to figure out which of these are even possible to make at the factory. Write a program to determine, for each of the new recipies, if its required temperature and flow level is possible to achieve with some setting of the k faucets.

Input

The first line of input contains an integer k ($1 \leq k \leq 10$), the number of taps. Then follow k lines, describing the taps. The i'th of these lines contains the three integers t_i, a_i, and b_i ($0 \leq t_i \leq 10^6$, $0 \leq a_i \leq b_i \leq 10^6$) describing the i'th faucet.

Next follows a line containing an integer r ($1 \leq r \leq 10^5$), the number of new recipies to check. Then follows r lines, each describing a recipe. A recipe is described by two integers τ and ϕ ($0 \leq \tau \leq 10^6$ and $1 \leq \phi \leq 10^6$), where τ is the chocolate temperature and ϕ the chocolate flow needed for this recipe.

Output

For each of the r recipies, print one line with the string "`yes`" if it is possible to achieve the desired combination of chocolate temperature and flow, and "`no`" otherwise.

Sample Input 1	Sample Output 1
2 50 0 100 100 50 100 3 20 75 75 150 75 90	no yes no