Problem I
Buffet
Time Limit: 3 seconds

Mooncakes are delicious. There are so many kinds of mooncakes. Do you want to enjoy all of them? Let us join the Mooncake Buffet.

The organizers of the Mooncake Buffet prepare N different tables, labeled from 1 to N, in the Garden of the Moon. The i^{th} table can contain at most q_i pieces of mooncakes of the i^{th} type. Initially, all tables are empty.

The Mooncake Buffet begins at time $t = 1$ and will finish at time $t = M + 1$. At a certain time instance t ($1 \le t \le M$), several tables will be refilled. When the i^{th} table is refilled, it will contain exactly q_i pieces of mooncakes (regardless of the number of mooncake pieces available on the table). At every time instance t, visitors will take R pieces of mooncakes from every table. Sometimes there are not enough R pieces of mooncake pieces on a table for visitors to take.

Tommy is an organized person and he always wants to prepare a plan for any activity. He has a list of his favorite types of mooncakes. At a time instance t, he will take exactly e_i pieces of mooncakes from the i^{th} table at once (there must be at least e_i pieces of mooncake on the table) and eat these pieces until after time instance $t + K - 1$. Then he can continue to look for another favorite type of mooncakes from time instance $t + K$.

Can Tommy enjoy all of his favorite types of mooncakes? Please remember that all visitors should leave the Mooncake Buffet right after time instance M.

For your convenience, at each time instance t ($1 \le t \le M$), the following actions may happen in this sequence:

- Visitors try to take up to R pieces from every table.
- One table may be refilled.
- Tommy tries to take mooncake pieces from one table (if there are enough pieces of his preference).

Input

The input consists of multiple test cases. The first line of input contains an integer T ($1 \le T \le 20$), the number of test cases.

For each test case:

- The first line contains four integers N, M, K, and R ($1 \le N \le 8$, $1 \le M \le 10000$, $1 \le K \le M$ and $1 \le R \le 10^9$)
- The second line contains N integers q_i, the capacity of the i^{th} table ($1 \le q_i \le 10^9$). When the i^{th} is refilled, it will contain exactly q_i mooncake pieces.
- The third line contains M integers a_t, the index of the table that will refilled at time instance t ($0 \le a_t \le N$). $a_t = 0$ if there is no table refilled at time instance t.
- The fourth line contains an integer Q, the number of favorite lists ($1 \le Q \le 100$)
- Each of the next Q lines contains information of a favorite list. Each favorite list has N integers e_i - the number of mooncake pieces that Tommy intends to eat from the i^{th} table ($1 \le e_i \le 10^9$).

Output

For each list among the Q favorite lists, display `Yes` if there is a plan to eat all types of mooncakes in the favorite list. Otherwise, display `No`.

Sample Input	Sample Output
1 2 6 2 1 4 1 1 2 0 0 0 1 2 1 1 3 1	Yes No

Explanation:
There are 2 tables. The first table (with capacity $q_1 = 4$) will be refilled at time instance $t = 1$ and $t = 6$ (the last time instance). The second table (with capacity $q_2 = 1$) will be refilled only one time at time instance $t = 2$. At every time instance, visitors will take $R = 1$ piece of mooncake from every table (if there is any piece on the table).

Here is the states of all tables at each time instance (without Tommy's actions)

Time Instance	Number of mooncake pieces		Explanation
	1st table	2nd table	
$t = 1$	4	0	Tables are initially empty. Visitors cannot take any mooncake piece. Table 1 is refilled.
$t = 2$	3	1	Table 2 is refilled. Visitors take 1 piece from the table 1
$t = 3$	2	0	No table is refilled. Visitors take 1 piece from each table.
$t = 4$	1	0	No table is refilled. Visitors take 1 piece from table 1. Nothing is left on table 2.
$t = 5$	0	0	No table is refilled. Both tables are empty.
$t = 6$	4	0	Table 1 is refilled

For the first favorite list, Tommy wants to eat 1 piece of mooncake from each table. If he decides to take 1 piece from the first table at time instance $t = 1$, he should eat that piece until time instance $t = 3$. Then he cannot take any piece from the second table as another visitor already takes the only piece on the second table right at time instance $t = 2$. His plan should be like this: Tommy first takes 1 piece of mooncake from the second table at time instance $t = 2$, eats it until $t = 4$, then takes 1 piece of mooncake from the first table, eats it until $t = 6$, the leave the Mooncake Buffet at $t = 7$ (on time!).

For the second favorite list, Tommy wants to eat 3 pieces from the first table, and 1 piece from the second table. It can be verified that he cannot fulfill his dream!