Problem A Alice and Arithmetic Progression I

Alice is interested in the properties of arithmetic progression. One day, he construct an arithmetic progression* a with length $4m+2$.

Alice will choose two indices i and j, delete a_i and a_j from the arithmetic progression and keep the order for remaining elements in the arithmetic progression. Alice thinks that an arithmetic progression is $(i,j)-$good if the remaining progression can be divided into m subsequence* with length 4 and all of them are arithmetic progression. Every elements in the remaining progression must belong to exactly one subsequence.

Alice is puzzled about for a given (i,j), if an arithmetic progression is $(i,j)-$good. So, he would like you to tell him. Alice is also interested in how that can be achieved if is, so please also print the m subsequences that satisfy the conditions. If there are multiple solutions, print any of them.

*An arithmetic progression a of length m is that for every $1 \le i < m$, exist $a_{i+1} - a_i = d$, where d is a constant.

*A subsequence of an array can obtained by select any elements from the array but not change their order. For example, $[1,2,4]$ is an subsequence of $[1,2,3,4,5]$, but $[1,2,2]$ and $[3,2,1]$ are not.

Input

Each test contains multiple test cases. The first line contains the number of test cases $t(1 \le t \le 10^5)$. The description of the test cases follows.

The first line of each test case contains a two integers $m(1 \le t \le 10^7)$, $d(-10^7 \le t \le 10^7)$ and $a_1(-10^7 \le t \le 10^7)$ — the number of the subsequence, the tolerance of the arithmetic progression and the first element of the arithmetic progression.

The second line contains two integers i and $j(1 \le i,j \le 4m+2, i \ne j)$— the two indices i and j that a_i and a_j are deleted from the arithmetic progression.

It is guaranteed that the sum of m over all test cases does not exceed 10^7.

Output

For each test case, output "Yes" if arithmetic progression a is $(i,j)-$good, and output "No" otherwise. If it is, output new m lines, which are m subsequences that satisfy the conditions. If there are multiple solutions, print any of them.

Example

input

```
3
1 1 1
1 6
3 1 1
2 13
1 1 1
1 5
```

output

```
Yes
2 3 4 5
Yes
1 4 7 10
3 6 9 12
5 8 11 14
No
```

Note

In the first test case, a_1 and a_6 is deleted, the remaining progression $[2, 3, 4, 5]$ can be divided into one subsequence $[2, 3, 4, 5]$ which is an arithmetic progression, so the answer is "Yes".

In the second test case, a_2 and a_{13} is deleted, the remaining progression $[1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14]$ can be divided into three subsequences $[1, 4, 7, 10]$,$[3, 6, 9, 12]$ and $[5, 8, 11, 14]$, which are all arithmetic progressions, so the answer is "Yes".

In the third test case, a_1 and a_5 is deleted, there are no ways that divide the remaining progression $[2, 3, 4, 6]$ into subsequences that satisfy the conditions, so the answer is "No".

Problem B Alice and Arithmetic Progression II

Alice is interested in the properties of arithmetic progression. One day, he construct an arithmetic progression* a with length $km + c$, and an array b of length $c(1 \le b_i \le km + c)$.

Alice will delete $a_{b_i}(1 \le i \le c)$ from the arithmetic progression and keep the order for remaining elements in the arithmetic progression. Alice thinks that the arithmetic progression a is $b-$good if the remaining progression can be divided into m subsequence* with length k and all of them are arithmetic progression. Every elements in the remaining progression must belong to exactly one subsequence.

Alice is puzzled about for a given array b, if the arithmetic progression a is $b-$good. So, he would like you to tell him. Alice is also interested in how that can be achieved if is, so please also print the m subsequences that satisfy the conditions. If there are multiple solutions, print any of them.

*An arithmetic progression a of length m is that for every $1 \le i < m$, exist $a_{i+1} - a_i = d$, where d is a constant.

*A subsequence of an array can obtained by select any elements from the array but not change their order. For example, $[1, 2, 4]$ is an subsequence of $[1, 2, 3, 4, 5]$, but $[1, 2, 2]$ and $[3, 2, 1]$ are not.

Input

Each test contains multiple test cases. The first line contains the number of test cases $t(1 \le t \le 10^5)$. The description of the test cases follows.

The first line of each test case contains a two integers $k(1 \le t \le 10^7)$, $m(1 \le t \le 10^7)$, $c(1 \le c < k)$, $d(-10^7 \le t \le 10^7)$ and $a_1(-10^7 \le t \le 10^7)$ — the length of the subsequence, the number of the subsequence, the length of the array b, the tolerance of the arithmetic progression and the first element of the arithmetic progression.

The second line contains c integers $b_1, b_2, \cdots, b_c(1 \le b_i \le km + c)$— the element of the array b.

It is guaranteed that the sum of $km + c$ over all test cases does not exceed 10^7.

Output

For each test case, output "Yes" if arithmetic progression a is $(i, j)-$good, and output "No" otherwise. If it is, output new m lines, which are m subsequences that satisfy the conditions. For each line, out put k integers, which are the elements of the corresponding subsequence. If there are multiple solutions, print any of them.

Example

input

```
3
4 1 2 1 1
1 6
4 3 2 1 1
2 13
4 1 2 1 1
1 5
```

output

```
Yes
2 3 4 5
Yes
1 4 7 10
3 6 9 12
5 8 11 14
No
```

Note

In the first test case, a_1 and a_6 is deleted, the remaining progression $[2, 3, 4, 5]$ can be divided into one subsequence $[2, 3, 4, 5]$ which is an arithmetic progression, so the answer is "Yes".

In the second test case, a_2 and a_{13} is deleted, the remaining progression $[1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14]$ can be divided into three subsequences $[1, 4, 7, 10]$,$[3, 6, 9, 12]$ and $[5, 8, 11, 14]$, which are all arithmetic progressions, so the answer is "Yes".

In the third test case, a_1 and a_5 is deleted, there are no ways that divide the remaining progression $[2, 3, 4, 6]$ into subsequences that satisfy the conditions, so the answer is "No".

Problem C Alice and Arithmetic Progression III

Alice is interested in the properties of arithmetic progression. One day, he construct an arithmetic progression* a with length $km + c$. He has already know how to judge if an array b for an arithmetic progression a is $b-$good due to the previous problems. So he think about a new problem, that is, what is the probability that if he randomly choose a array b with length m and satisfying $b_i \in [1, km + c] \cap \mathbb{Z}$ and $b_i < b_j (i < j)$ such that a is $b-$good?

Alice thinks that the arithmetic progression a is $b-$good if after delete $a_{b_i} (1 \le i \le c)$ from the arithmetic progression and keep the order for remaining elements in the arithmetic progression, the remaining progression can be divided into m subsequence* with length k and all of them are arithmetic progression. Every elements in the remaining progression must belong to exactly one subsequence.

It can be proven that the answer is in the form $\frac{p}{q}$. To avoid precision issues, output $p \cdot \mathrm{inv}(q) \mod 998244353$*.

*An arithmetic progression a of length m is that for every $1 \le i < m$, exist $a_{i+1} - a_i = d$, where d is a constant.

*A subsequence of an array can obtained by select any elements from the array but not change their order. For example, $[1, 2, 4]$ is an subsequence of $[1, 2, 3, 4, 5]$, but $[1, 2, 2]$ and $[3, 2, 1]$ are not.

*The inverse of integer q, is defined as $\mathrm{inv}(q)$, and satisfying that $\frac{1}{q} \equiv \mathrm{inv}(q) \pmod{998244353}$.

Input

Each test contains multiple test cases. The first line contains the number of test cases $t (1 \le t \le 10^5)$. The description of the test cases follows.

Each test case contains only one line with five integers $k (1 \le t \le 10^7)$, $m (1 \le t \le 10^7)$, $c (1 \le c < k)$, $d (-10^7 \le t \le 10^7)$ and $a_1 (-10^7 \le t \le 10^7)$ — the length of the subsequence, the number of the subsequence, the length of the array b, the tolerance of the arithmetic progression and the first element of the arithmetic progression.

It is guaranteed that the sum of $km + c$ over all test cases does not exceed 10^7.

Output

For each test case, out put the number of array b that make the arithmetic progression a to be $b-$good module 998244353.

Example

input

```
1
4 1 2 1 1
```

output

```
598946612
```

Note

In the test case, there are total 15 number of array b and 3 arrays $[1, 6]$,$[1, 2]$,$[5, 6]$ satisfy the condition. Thus the answer is $\frac{3}{15} \mod 998244353 = 598946612$.