Determinant

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Alice uses the excellent property of the matrix A^TA to find the determinant of the matrix A^TA. Recall that the determinant of A, denoted by $\det(A)$, satisfies $\det(A^TA) = \det(A)^2$. Alice uses this property to find the absolute value $|\det(A)|$. But unfortunately, when $|\det(A)| \neq 0$, this method does not work out whether $\det(A)$ is positive or negative.

Now that you know the matrix A and the absolute value of $\det(A)$, determine whether it is positive or negative.

Input

An integer T ($1 \leq T \leq 100$) in the first line represents the number of test cases.

For each test case, the first line has an integer n ($1 \leq n \leq 100$), where the size of matrix A is $n \times n$.

The second line has a large number $|\det(A)|$. And it can be proved that $|\det(A)|$ has no more than 10^4 bits under the conditions in this problem.

The third to the (n+2)-th lines, each with n numbers, describe this matrix. It is ensured that the absolute value of each number does not exceed 10^9.

Output

For each test case, output a single line with a character "+" or "-", indicating whether the determinant is positive or negative.

Example

standard input	standard output
3 1 1 1 2 2 1 2 3 4 2 5 -1 2 3 -1	+ - -