Find The Determinant III

Given a NxN matrix A, find the Determinant of A % P.

Input

Multiple test cases (the size of input file is about 3MB, all numbers in each matrix are generated randomly).

The first line of every test case contains two integers , representing N (0 < N < 201) and P (0 < P < 1,000,000,001). The following N lines each contain N integers, the j-th number in i-th line represents A[i][j] (- 1,000,000,001 < A[i][j] < 1,000,000,001).

Output

For each test case, print a single line contains the answer.

Example

Input:
1 10
-528261590
2 2
595698392 -398355861
603279964 -232703411
3 4
-840419217 -895520213 -303215897
537496093 181887787 -957451145
-305184545 584351123 -257712188

Output:
0
0
2