

Expanded Hull

Input file: **standard input**
Output file: **standard output**
Time limit: 4 seconds
Memory limit: 1024 megabytes

You are given integers N, K and N points $(X_1, Y_1, Z_1), \dots, (X_N, Y_N, Z_N)$ in three-dimensional space.

Let V be the convex hull of the N points $(KX_1, KY_1, KZ_1), \dots, (KX_N, KY_N, KZ_N)$. Count the number of points that are contained in the interior or on the boundary of V and have integer coordinates, modulo 998244353.

Input

The input is given from Standard Input in the following format:

$N \ K$
 $X_1 \ Y_1 \ Z_1$
 $\vdots$
 $X_N \ Y_N \ Z_N$

- All values in the input are integers.
- $4 \leq N \leq 100$
- $1 \leq K \leq 10^{15}$
- $-200 \leq X_i, Y_i, Z_i \leq 200$ ($1 \leq i \leq N$)
- $(X_i, Y_i, Z_i) \neq (X_j, Y_j, Z_j)$ ($1 \leq i < j \leq N$)
- There is no plane passing through all N points.

Output

Output the answer.

Examples

standard input	standard output
4 2 0 0 0 1 0 0 0 1 0 0 0 1	10
4 10000 0 0 0 1 0 0 0 1 0 0 0 1	59878050
8 314159265358979 5 -3 -3 -5 -3 -3 0 5 -3 0 0 10 4 2 6 -4 2 6 0 -5 6 0 0 -5	152811018

Note

In the first example, there are 10 points that are contained in the interior or on the boundary of V and have integer coordinates: $(0, 0, 0)$, $(1, 0, 0)$, $(2, 0, 0)$, $(0, 1, 0)$, $(1, 1, 0)$, $(0, 2, 0)$, $(0, 0, 1)$, $(1, 0, 1)$, $(0, 1, 1)$, $(0, 0, 2)$