

## Problem H. Hard Combinatorics

Input file: `stdin`  
Output file: `stdout`  
Time limit: 1 second

In this problem, you are asked to calculate the following formula efficiently.

$$\sum_{i=1}^N \sum_{j=1}^N \binom{A_i + B_j + C_i + D_j}{A_i + B_j}$$

where  $N$ ,  $A_i$ ,  $B_i$ ,  $C_i$ , and  $D_i$  are all given positive integers. Since the answer can be extremely large, you are only asked to print its remainder modulo  $10^9 + 7$ .

### Input

The first line of input contains a positive integer  $N$  ( $1 \leq N \leq 10^5$ ). The following  $N$  lines describe  $A_i$ ,  $B_i$ ,  $C_i$ , and  $D_i$ , respectively ( $1 \leq A_i, B_i, C_i, D_i \leq 10^3$ ).

### Output

For each test case, print a line of the desired answer.

### Examples

stdin	stdout
2 1 2 3 4 5 6 7 8	7789928
5 1 2 3 4 1 2 3 4 4 5 1 2 5 6 7 8 5 6 3 1	8833732