

Problem I: I Love Square Number

- Time Limit: 2 sec

Problem Statement

Consider a graph with $\frac{N(N+1)}{2}$ vertices and $\frac{3N(N-1)}{2}$ edges, where N is an integer greater than or equals to 2.

- The set of vertices is $\{(i, j) \mid 1 \leq i \leq N, 1 \leq j \leq i\}$.
- There is an edge with weight $a_{i,j}$ between (i, j) and $(i + 1, j)$ (for $1 \leq i \leq N - 1$ and $1 \leq j \leq i$).
- There is an edge with weight $b_{i,j}$ between (i, j) and $(i + 1, j + 1)$ (for $1 \leq i \leq N - 1$ and $1 \leq j \leq i$).
- There is an edge with weight $c_{i,j}$ between (i, j) and $(i, j + 1)$ (for $2 \leq i \leq N$ and $1 \leq j \leq i - 1$).

For a simple path in this graph, the weight of the path is defined as the **product** of the weights of the edges that the path traverses.

Determine the number of unordered pairs of distinct vertices $\{s, t\}$ such that any simple path from s to t has a weight that is a square number.

Input

The input is given in the following format:

- N
 $a_{1,1}$
 $a_{2,1} \ a_{2,2}$
 \vdots
 $a_{N-1,1} \ \dots \ a_{N-1,N-1}$
 $b_{1,1}$
 $b_{2,1} \ b_{2,2}$
 \vdots
 $b_{N-1,1} \ \dots \ b_{N-1,N-1}$
 $c_{2,1}$
 $c_{3,1} \ c_{3,2}$
 \vdots
 $c_{N,1} \ \dots \ c_{N,N-1}$
- $2 \leq N \leq 1,000$
 - $1 \leq a_{i,j}, b_{i,j}, c_{i,j} \leq 10^6$
 - All input values are integers.

Output

Output the answer.

Sample Input 1	Sample Output 1
2 1 2 2	1
Sample Input 2	Sample Output 2
3 1 2 3 4 5 6 7 8 9	0