

Problem A

Compute the volume of a triangulated 3D body. You are given the vertices and edges of the body, and you can assume that every face is a triangle and that every triangle forms a face.

Input and output

The first line of the input contains an integer n ($4 \leq n \leq 10^5$), the number of vertices of the body. The i -th of the following n lines contains three integers x_i , y_i , and z_i ($-10^4 \leq x_i, y_i, z_i \leq 10^4$), the coordinates of the vertex number i . Each of the following $3n - 6$ lines contains two integers u and v , indicating that the vertices u and v are connected by an edge.

Output a single line, containing the volume of the body multiplied by 6.

Example

Input:

```
4
0 0 0
1 0 0
0 1 0
0 0 1
1 2
1 3
1 4
2 3
2 4
3 4
```

Output:

```
1
```