

6782 Triangles

We want to create a long paper chain of triangles for the king of ACMland. This king requires that the various supply of grey coloured paper of triangles be connected together such that the shades of grey increase from light (white has value 0.0) to dark (black has value 1.0).

Each triangle can be fastened together with one or two other triangles along sides with equal length. The king is concerned only that triangles are correctly connected to their neighbours: he doesn't mind if triangles overlap each other when laid flat. To increase flair, each triangle of the chain must be a different shade of grey. For example, for the triangles shown in the figure below, we can connect together four of them to make a chain.

Input

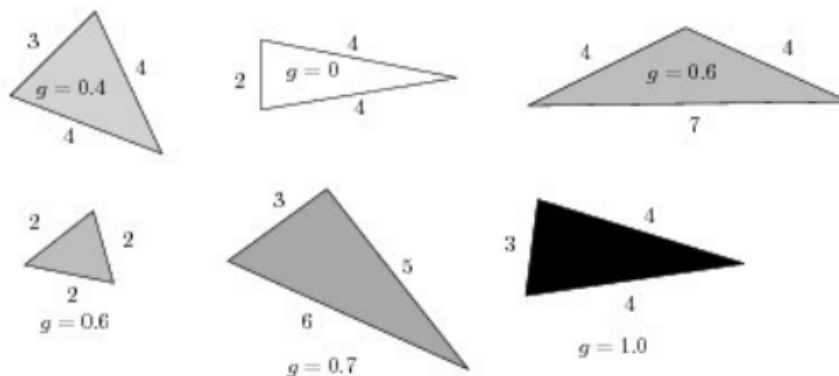
The input file contains several test cases, each of them as described below.

The first line in the input contains an integer, $1 \leq n \leq 1000$, which denotes the number of triangles available. Each of the following n lines contains three positive integers $0 < l_1, l_2, l_3 \leq 10^6$ that denote the triangle side lengths and a real value $0.0 \leq g \leq 1.0$ with at most three digits after the decimal point that denotes its grey scale value.

Output

For each test case, the output consists of a single positive integer that represents the longest chain of triangles that could be built and satisfy the criteria above, on a line by itself.

Note: Taken from the pictorial example below, we have the following sample input.



Sample Input

```
6
3 4 4 0.4
4 4 2 0.0
4 7 4 0.6
2 2 2 0.6
3 5 6 0.7
3 4 4 1.0
```

Sample Output

4