

4750 Heroes Arrangement

There are N heroes in the Kingdom of Heroes, each hero has a special range of activity, this “range” is a delta-shaped region (**triangle region including the boundary**; it is guaranteed that all triangles will neither degenerate into a segment nor a point **in the King’s angle of view**), and heroes can appear in any point in his activity range. The king, standing at the Origin $(0, 0, 0)$, is observing the heroes. **No range of activity will contain the king’s position.**

You may assume that no hero could meet others, that means these “range” have no common point. Your task is to find number K , indicating that the king can choose at most K heroes such that no pairs of chosen heroes cause one may block the king’s view line to observe another. In other words, no hero can appear on the segment between another hero and the King.

Input

There are multiple test cases, the number of them, T , is given in the very first line of the input, followed by T cases.

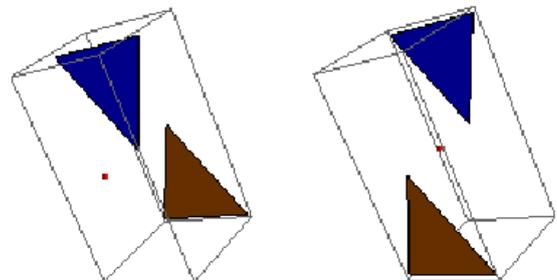
For each test case:

First line contains an integer N , the number of heroes, $1 \leq N \leq 40$. Then N lines follow, each line contains nine integers $x_1 y_1 z_1 x_2 y_2 z_2 x_3 y_3 z_3$, denoting the coordinates of the delta-shaped regions’ vertex respectively, $-100 \leq x_1, y_1, z_1, x_2, y_2, z_2, x_3, y_3, z_3 \leq 100$.

Output

Output a single line with a number K with case number, the maximum number of heroes that king can choose.

Hint: The sample image of the sample input is drawn on the right, the small sphere is the position of the king.



Sample Input

```

2
2
0 0 1 1 2 1 -1 2 1
0 0 2 1 -2 2 -1 -2 2
2
0 0 1 1 2 1 -1 2 1
0 0 -1 1 -2 -1 -1 -2 -1
  
```

Sample Output

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Case #1: 1
Case #2: 2
  
```