

Rotations in 3 Dimensions

Your task is simple: given some points in 3D, rotate them around an axis of rotation.

Input Specification

The first line of input will contain T , the number of test cases ($1 \leq T \leq 1\,000$).

The next T lines will each contain 7 real numbers to 6 decimal places, $x\ y\ z\ rx\ ry\ rz\ \theta$. You are to rotate the point (x, y, z) around the axis of rotation (rx, ry, rz) such that if you look at the origin from the axis of rotation, it will be rotated θ radians counterclockwise. All coordinates will have absolute value of at most 1 000 and θ will be such that $0 \leq \theta < 2\pi$. It is guaranteed at least one of rx, ry, rz is nonzero.

Output Specification

Output T lines, each line should have the (x', y', z') , the result of rotation as three space-separated real numbers. Your answer will be judged as correct if it is within an absolute or relative error of 10^{-6} .

Sample Input

```
2
0.000000 0.000000 0.000000 1.000000 0.000000 0.000000 3.141593
1.000000 0.000000 0.000000 1.000000 1.000000 1.000000 1.570796
```

Sample Output

```
0.000000 0.000000 0.000000
0.333334 0.910683 -0.244017
```