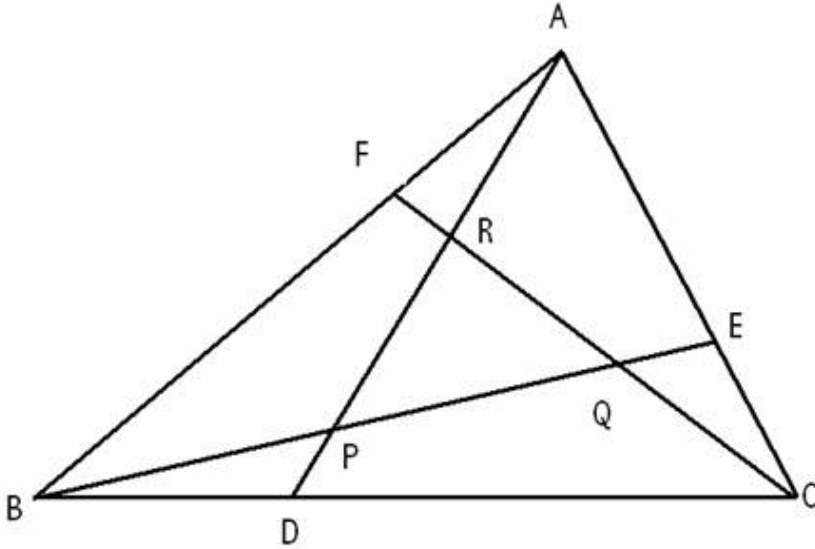In the picture below you can see a triangle ABC. Point D, E and F divides the sides BC, CA and AB into ratio 1:2 respectively. That is CD=2BD, AE=2CE and BF=2AF. A, D; B, E and C, F are connected. AD and BE intersects at P, BE and CF intersects at Q and CF and AD intersects at R.

So now a new triangle PQR is formed. Given triangle ABC your job is to find the area of triangle PQR.

Input

First line of the input file contains an integer N ($0 < N < 1001$) which denotes how many sets of inputs are there. Input for each set contains six floating-point number A_x, A_y, B_x, B_y, C_x, C_y. ($0 \le A_x, A_y, B_x, B_y, C_x, C_y \le 10000$) in one line line. These six numbers denote that the coordinate of points A, B and C are (A_x, A_y), (B_x, B_y) and (C_x, C_y) respectively. A, B and C will never be collinear.

Output

For each set of input produce one line of output. This one line contains an integer AREA. Here AREA is the area of triangle PQR, rounded to the nearest integer.

Sample Input

```
2
3994.707 9251.677 4152.916 7157.810 5156.835 2551.972
6903.233 3540.932 5171.382 3708.015 213.959 2519.852
```

Sample Output

```
98099
206144
```