

Inside or outside

Given an ellipse E and a point P on the plane decide if:

1. P belongs to E .
2. P belongs to the interior of E .
3. P belongs to the exterior of E .

Input

First $t < 1000$, the number of test cases. In each of the following t lines, 6 integers: $-100 \leq E_x, E_y \leq 100$ (coordinates of the center of the ellipse), $0 < a \leq 100$ (the length of the semi-axis parallel to the x-axis), $0 < b \leq 100$ (the length of the semi-axis parallel to the y-axis), $-100 \leq P_x, P_y \leq 100$ (the coordinates of P).

Output

For each test, output one number 1, 2 or 3 in a separate line, denoting the appropriate case, as enumerated above.

Example

Input:

```
4
0 0 5 10 3 8
0 0 5 10 5 0
0 0 5 5 4 4
-10 -10 7 2 -10 -10
```

Output:

```
1
1
3
2
```

Scoring

By solving this problem you score 10 points.