

Point in the triangle

Given the coordinates of the vertices of the triangle, the coordinates of point D , you need to determine and derive the position of point D relative to the triangle.

Input

From a standard input device, the coordinates of four points are entered through a space:

$A_x, A_y, B_x, B_y, C_x, C_y, D_x, D_y,$

where points A, B, C are the vertices of a triangle, D is a point on the plane. The coordinates of all points are integers from -1000 to 1000.

Output

It is required to print "1" (without the quotes) if the point D lies inside the triangle or on one of its sides, otherwise it is necessary to print "0" (without the quotes).

Sample Input

```
0 0 -1 -3 4 -1 0 3
```

Sample Output

```
0
```

Note

The area of the triangle by the coordinates of its vertices can be found as follows:

$$S = / (B_x - A_x) * (A_y + B_y) + (C_x - B_x) * (C_y + B_y) + (A_x - C_x) * (A_y + C_y) // 2.$$

Try to implement the `getArea()` function, which takes the coordinates of the three vertices of a triangle and returns its area.