SCPE Spring 2025

Circle Intersection

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You are given the **centers** and **radii** of 3 circles on the xy-coordinate plane. Determine if each pair of circles is **connected**.

A pair of circles is connected if they overlap at one or more points. If one circle is completely contained within another, that pair overlaps.

The centers of each circle is a (x, y) coordinate pairs, where x and y are integers. Each radius r is an integer as well. All circles are unique; there are no two circles with the exact same center and radius.

Objective

Given 3 circles, determine if each pair of circles are **connected**. If all pairs of circles are connected, print `YES`. Otherwise, print `NO`.

Input Specification

There are 3 lines of input, where line i contains a triplet of integers: coordinates (x_i, y_i) and radius r_i of one single circle.

Note: you are **encouraged** to graph the following testcases on Desmos or similar software!

Constraints

- $-10^4 \leq x_i, y_i, r_i \leq 10^4$

Output Specification

Output `YES` if the circles all intersect at one or more point, and `NO` otherwise.

Sample Input	Sample Output
1 4 5 2 11 3 1 9 2	YES
-3 1 5 3 -2 2 3 2 3	YES
-2 -1 2 2 -1 2 0 2 2	YES
-2 -1 2 2 -1 2 0 3 2	NO